SyncMaster XL20

Windows

Natural Color Expert

MagicRotation

ImageViewer

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The color and appearance of the product may vary depending on the model, and the product specifications are subject to change without prior notice for reasons of performance enhancement.

Notational

Please read the following safety instructions as they are designed to prevent damage to property and harm to the user.

Warning / Caution

Failure to follow directions noted by this symbol could result in bodily harm or damage to the equipment.

Notational Conventions

Prohibited	Important to read and understand at all times
Do not disassemble	Disconnect the plug from the outlet
Do not touch	Ground to prevent an electric shock

Power

When not used for an extended period of time, set your computer to DPMS.
If using a screen saver, set it to active screen mode.

Shortcut to Anti-Afterimage Instructions

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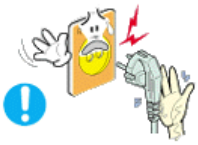
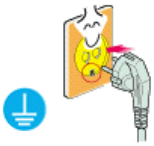
Do not use a damaged or loose plug.

- This may cause electric shock or fire.



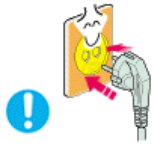
Do not pull the plug out by the wire nor touch the plug with wet hands.

- This may cause electric shock or fire.



Use only a properly grounded plug and receptacle.

- An improper ground may cause electric shock or equipment damage.

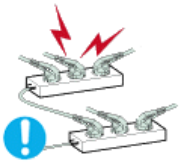


Insert the power plug firmly so that it does not come loose.

- A bad connection may cause fire.

Do not excessively bend the plug and wire nor place heavy objects upon them, which could cause damage.

- This may cause electric shock or fire.



Do not connect too many extension cords or plugs to one outlet.

- This may cause fire.

Do not disconnect the power cord while using the monitor.

- A surge may be caused by the separation and may damage the monitor.

Do not use the power cord when the connector or plug is dusty.

- If the connector or plug of the power cord is dusty, clean it with a dry cloth.
- Using the power cord with a dusty plug or connector may cause an electric shock or fire.

Installation

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Be sure to contact an authorized Service Center, when installing your monitor in a location with heavy dust, high or low temperatures, high humidity, and exposed to chemical substances and where it operates for 24 hours such as at airports, train stations etc.

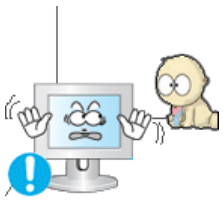
Failure to do so may cause serious damage to your monitor.

- **Place your monitor in a location with low humidity and a minimum of dust.**
  - Failure to do so may cause electric shock or fire inside the monitor.

- **Do not drop the monitor when moving it.**
  - This may cause damage to the product or the person carrying it.

- **Install the monitor base in a showcase or shelf so that the end of the base does not protrude from the showcase or shelf.**
  - Dropping the product may cause a malfunction or injury to the person carrying it.

- **Do not place the product on an unstable or small surface area.**
  - Place the product on an even and stable surface, as the product may fall and cause harm to someone walking by, specifically children.



- **Do not place the product on the floor.**
  - Take care, as someone, specifically children may trip over it.

- **Keep any flammable objects such as candles, insecticides or cigarettes away from the product.**
  - Otherwise, this may cause fire.

- **Keep any heating devices away from the power cable.**
  - A melted coating may cause electric shock or fire.

- **Do not install the product in places with poor ventilation, for instance, a bookshelf, closet, etc.**
  - Any increase in the internal temperature may cause fire.

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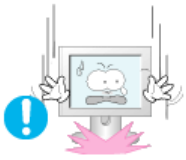

Put down the monitor carefully.

- Failing to do so may damage the monitor.

Do not place the monitor face down.

- This may damage the TFT-LCD surface.

The installation of the bracket must be done by a qualified professional.

- Installing the bracket by unqualified personnel may result in injury.
- Always use the mounting device specified in the owner's manual.

When installing the product, make sure to keep it away from the wall (more than 10 cm/4 inches) for ventilation purposes.

- Poor ventilation may cause an increase in the internal temperature of the product, resulting in a shortened component life and degraded performance.

Keep the plastic packaging (bag) out of children’s reach.

- The plastic packaging (bag) may cause suffocation if children play with it.

Clean

When cleaning the monitor case or the surface of the TFT-LCD screen, wipe with a slightly moistened, soft fabric.

Do not spray water or detergent directly onto the monitor.

- This may cause damage, electric shock or fire.

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Use the recommended detergent with a smooth cloth.

If the connector between the plug and the pin is dusty or dirty, clean it properly using a dry cloth.

- A dirty connector may cause electric shock or fire.

Make sure to unplug the power cord before cleaning the product.

- Otherwise, this may cause electric shock or fire.

Unplug the power cord from the power outlet and wipe the product using a soft, dry cloth.

- Do not use any chemicals such as wax, benzene, alcohol, thinners, insecticide, air freshener, lubricant or detergent.

Contact the SAMSUNG customer care center or Customer Center for interior cleaning once a year.

- Keep the product's interior clean. Dust which has accumulated in the interior over an extended period of time may cause a malfunction or fire.

Others

Do not remove the cover (or back).

- This may cause electric shock or fire.
- Refer to a qualified servicing company.

If your monitor does not operate normally - in particular, if there is any unusual sound or smell coming from the monitor - unplug it immediately and contact an authorized dealer or the Service Center.

- This may cause electric shock or fire.

Keep the product away from places exposed to oil, smoke or moisture; do not install inside a vehicle.

- This may cause a malfunction, electric shock or fire.
- In particular, avoid operating the monitor near water or outdoors where

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the monitor could be exposed to snow or rain.

- **If the monitor is dropped or the casing is damaged, turn the monitor off and unplug the power cord. Then contact a Service Center .**
  - The monitor may malfunction, causing electric shock or fire.

- **Disconnect the plug from the outlet during storms or lightning or if it is not used for a long period of time.**
  - Failure to do so may cause electric shock or fire.

- **Do not try to move the monitor by pulling only the wire or the signal cable.**
  - This may cause a breakdown, electric shock or fire due to damage to the cable.

- **Do not move the monitor right or left by pulling only the wire or the signal cable.**
  - This may cause a breakdown, electric shock or fire due to damage to the cable.

- **Do not cover the vents on the monitor cabinet.**
  - Bad ventilation may cause a breakdown or fire.

- **Do not place water containers, chemical products or small metal objects on the monitor.**
  - This may cause a malfunction, electric shock or fire.
  - If a foreign substance enters the monitor, unplug the power cord and contact the Service Center.

- **Keep the product away from combustible chemical sprays or inflammable substances.**
  - This may cause an explosion or fire.

- **Never insert anything metallic into the monitor openings.**
  - This may cause electric shock, fire or injury.

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- **Do not insert metal objects such as chopsticks, wire and tools or inflammable objects such as paper or matches into the vent, headphone port or AV ports or etc.**
  - This may cause electric shock or fire. If an alien substances or water enters the product, turn the product off, unplug the power connector from the wall outlet and contact the Service Center.

- **When viewing a fixed screen for an extended period of time, residual image or blurriness may appear.**
  - Change the mode to energy saving mode or set a screensaver to a changing picture when away from the monitor for an extended period of time.

- **Adjust the resolution and frequency to the levels appropriate for the model.**
  - An inappropriate resolution may cause undesirable picture quality.

    20 inch (51 cm) - 1600 X 1200

- **Viewing the monitor continuously at a too close angle may result in damage to your eyesight.**

- **To ease eye strain, take at least a five-minute break after every hour of using the monitor**.

- **Do not install the product on an unstable, uneven surface or a location prone to vibrations.**
  - Dropping the product may cause damage to the product or the person carrying it. Using the product in a location prone to vibrations may shorten the lifetime of the product or may cause the product to catch fire.

- **When moving the monitor, turn off and unplug the power cord. Make sure that all cables, including the antenna cable and cables connected to other devices, are disconnected before moving the monitor.**
  - Failure to disconnect cables may damage it and cause fire or electric shock.

- **Place the product out of children's reach, as they could damage by hanging onto it.**
  - A falling product may cause injury to the person or even fatality.

- **When not using the product for an extended period of time, keep the product unplugged.**

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- Otherwise, this may cause heat emission from the accumulated dirt or degraded insulation, causing electric shock or fire.

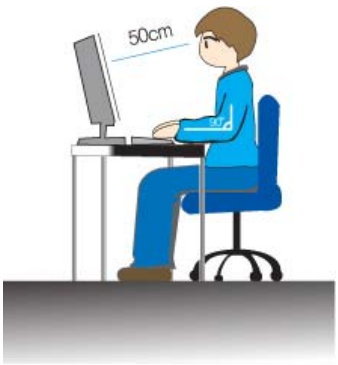
Do not place your children's favorite toys or any other objects of interest on the product.

- Children may try to climb on the product to retrieve an object. The product could fall, causing injury or even fatality.

When lifting up or moving the monitor, do not lift the monitor upside down while holding only the stand.

- This may cause your monitor to fall, and become damaged or cause personal injury.

Good Postures When Using the Monitor



Try to maintain a good posture when using the monitor.

- Keep your back straight.
- Keep a distance of about 45 ~ 50 cm between your eyes and the monitor screen. Look at the screen from slightly above it, and have the monitor directly in front of you.
- Tilt the monitor upwards by 10 ~20 degrees. Adjust the monitor height so that the top of the monitor is slightly below eye level.
- Adjust the monitor angle so that there is no reflected light on the screen.Try to maintain your arms perpendicular to your armpits.
- Keep your arms level with the back of your hands.
- Keep the angle of the elbow perpendicular.
- Keep the angle of the knees at more than 90 degree. Do not let your feet fall up from the floor. Adjust the arm position so that it is below the heart.

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Please make sure the following items are included with your monitor.
If any items are missing, contact your dealer.
Contact a local dealer to buy optional items.

Unpacking

Without Stand

With Stand
(Monitor & Sliding Stand)

Manual

Quick Setup Guide

Warranty Card
(Not available in all locations)

User's Guide,
Monitor Driver,
Natural Color Expert software,
MagicRotation software,
ImageViewer software

Cable

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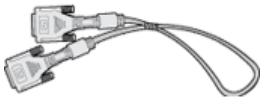
Power Cord



DVI Cable

USB Cable
(A-B Type cable)

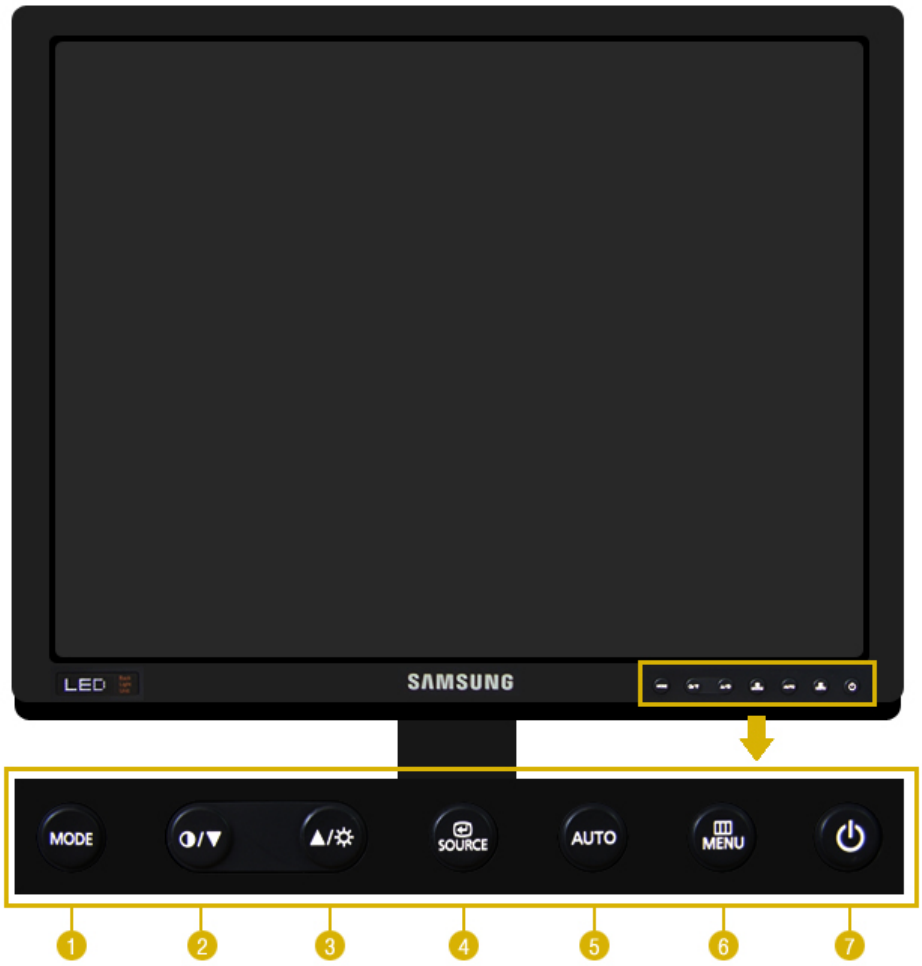
- Others

Calibrater

Cradle

Hood

Front



1	**MODE button (= Color Mode)**	Press this button to select a Color Mode. Continuing to press the button, will repeatedly display the setting modes. With the control buttons at the front of the monitor, you can easily implement different color information matching your environment.

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1) Custom - Although the values are carefully chosen by our engineers, the pre-configured values may not be comfortable to your eyes depending on your taste. If this is the case, adjust the brightness and contrast by using the OSD menu.

2) sRGB - Displays the sRGB color information on the screen.

3) AdobeRGB - Displays the Adobe RGB color information on the screen.

4) Emulation - With Natural Color Expert, you can change the system profile or a previously created color information and display it on the screen.
Caution: The Emulation information presented when pressing the Emulation button at the front of your monitor is saved as the Emulation information of the Color Mode for your product. Once saved, your monitor will be presented with this saved information whenever Emulation is selected.

5) Calibration - The Calibration functionality analyzes the color characteristics of your monitor and allows you to save its color information as an icc profile. This will tell your monitor what color space it should use and how it should accept and present colors. Displays your custom color information obtained by using Natural Color Expert and the Calibrator.
Caution: The Calibration information is presented when pressing the Calibration button at the front of your monitor. Note that only one piece of Calibration information, i.e. the one saved last, is kept on your monitor.

>>Click here to see an animation clip

The Contrast and Brightness functions only operate in Custom mode.

2	**Contrast button[◑]**	Adjust the contrast for the screen.
3	**Brightness button [☼]**	Adjust the brightness for the screen.
2, 3	**Adjust buttons [▼/▲]**	Adjust items in the menu.
4	**Enter button [SOURCE] / SOURCE button**	Activates a highlighted menu item. / Push the 'SOURCE', then selects the video signal while the OSD is off. (When the source button is pressed to change the input mode, a message appears in the upper left of the screen displaying the current mode -- analog or digital input signal.)
5	**AUTO button**	Use this button for auto adjustment.
6	**MENU button [MENU]**	Opens the OSD menu. Also use to exit the OSD menu or return to the previous menu.
7	**Power button [⏻] / Power indicator**	Use this button for turning the monitor on and off. / This light glows blue during normal operation, and blinks blue once as the monitor saves your adjustments.

See PowerSaver described in the manual for further information regarding power saving functions. For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods.

Rear

(The configuration at the back of the monitor may vary from product to product.)

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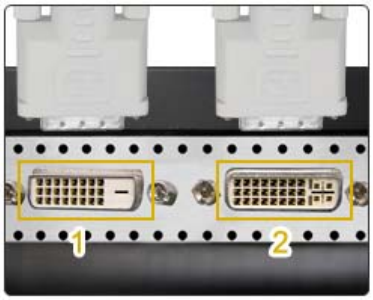
1 DVI



Connect the **DVI** terminal of your monitor to your computer using a DVI cable.

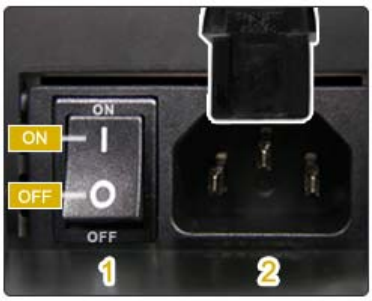
1. DVI-D (digital only): Only digital signals can be input to this terminal. Therefore, only connect the DVI terminal of your PC to this terminal.

2. DVI-I (for both digital and analog) : You can connect any one of the DVI and RGB terminals of your PC to this terminal.

2 Stand Stopper

Remove the fixing pin on the stand to lift the monitor up and down.

3 POWER



1. POWER S/W

: Switches the monitor On/Off.

2. POWER

: Connect the power cord for your monitor to the **POWER** on the back of the monitor.

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4 Kensington Lock

The Kensington lock is a device used to physically fix the system when using dit in a public place.
(The locking device has to be purchased separately.)

For using a locking device, contact where you purchase it.

5 USB connection terminal

UP (USB upstream port): Connect the **UP** port of the monitor and the USB port of the computer with the USB cable.

DOWN (USB downstream port): Connect the **DOWN** port of the USB monitor and a USB device with the USB cable.

- **To use DOWN (Downstream Port), you have to connect the UP (Upstream Cable) to the PC.**
- **Make sure to use the USB cable supplied with this monitor to connect the monitor's UP port and your computer's USB port.**

See Connecting the Monitor for further information regarding cable connections.

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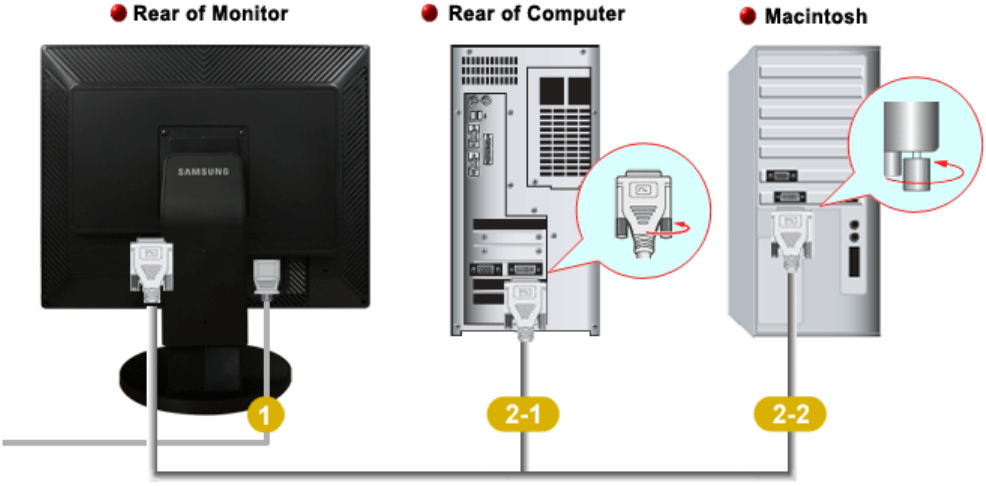
The color and appearance of the product may vary depending on the model, and the product specifications are subject to change without prior notice for reasons of performance enhancement.

Connecting the Monitor

Connecting the Monitor



1. Connect the power cord for your monitor to the power port on the back of the monitor.
   Plug the power cord for the monitor into a nearby outlet.
2. Use a connection appropriate for your computer.

   2-1 Using the DVI (Digital) connector on the video card.
   Connect the DVI Cable to the DVI Port on the back of your Monitor.

   [DVI-D] [DVI-I]

   2-2 Connected to a Macintosh.
   Connect the monitor to the Macintosh computer using the DVI connection cable.

Turn on your computer and monitor. If your monitor displays an image, installation is completed.

Using the Calibrater

1) What is the Calibrater?
The calibrater is a USB sensor that measures the surrounding illuminance and optimizes the brightness of the monitor.
(For more information on the use of the calibrater, see Natural Color Expert Help.)

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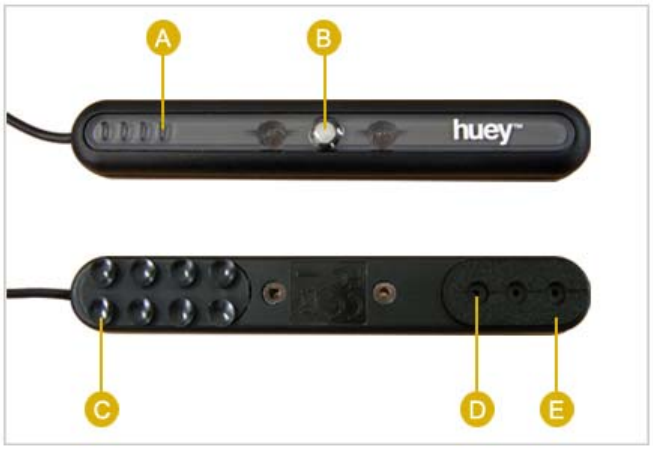

A	LED indicators	Turns on a red light when a product such as a scanner is being used.
B	Illuminance sensor	Measures the surrounding illuminance.
C	Sticky plates	Helps to attach the calibrater firmly to your monitor.
D	Color sensor	Adjusts the brightness of your monitor so that it matches the actual color sense.
E	Scratch prevention pad	Protects the monitor when attached to it.

2) Connecting the Calibrater

Connect the USB cable of the calibrater to the USB port on the right side of your monitor.

3) Using the Cradle

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1. The cradle allows the calibrater to stand at a similar angle to the monitor.
2. There are grooves in the circumference and at the bottom of the cradle, which you can use to arrange the USB cable neatly. When not used, you can also place the USB port here.

Changing the Stand and Installing the Hoods

Sliding Stand

A Stand Stopper

Swivel stand

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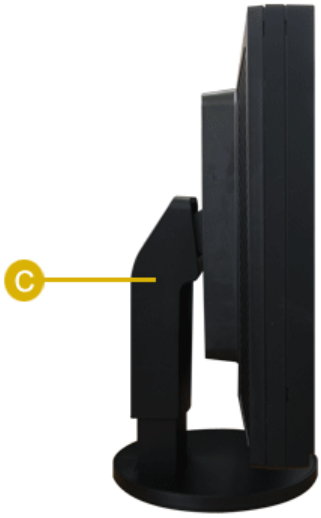
Using (B),You can swivel the monitor left and right at an angle of 330 ° to set the monitor lengthwise. The rubber under the stand is to avoid the monitor slide.

- **Tilt angle**



Using (C), You can adjust the tilt angle forward and backward for the most comfortable viewing angle.

- **Removing the base**

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1. Turn off your monitor and unplug its power cord.
2. Lay the LCD monitor face-down on a flat surface with a cushion beneath it to protect the screen.
3. Remove two screws (D) and then remove the Stand from the LCD monitor.

Attaching a Base

This monitor accepts a 100 mm x 100 mm VESA-compliant mounting interface pad.

A Monitor

B Mounting interface pad (Sold separately)

1. Turn off your monitor and unplug its power cord.
2. Lay the LCD monitor face-down on a flat surface with a cushion beneath it to protect the screen.
3. Remove two screws and then remove the stand from the LCD monitor.
4. Align the mounting interface pad with the holes in the rear cover mounting Pad and secure it with four screws that came with the arm-type base, wall mount hanger or other base.

⚠ To mount the monitor on a wall, you should purchase the wall mounting kit that allows you to mount the monitor at least 10 cm away from the wall surface.
Contact the nearest Samsung Service Center for more information.
Samsung Electronics will not be responsible for damages caused by using a base other than those specified.
Please use Wall Mount according to the International standards.

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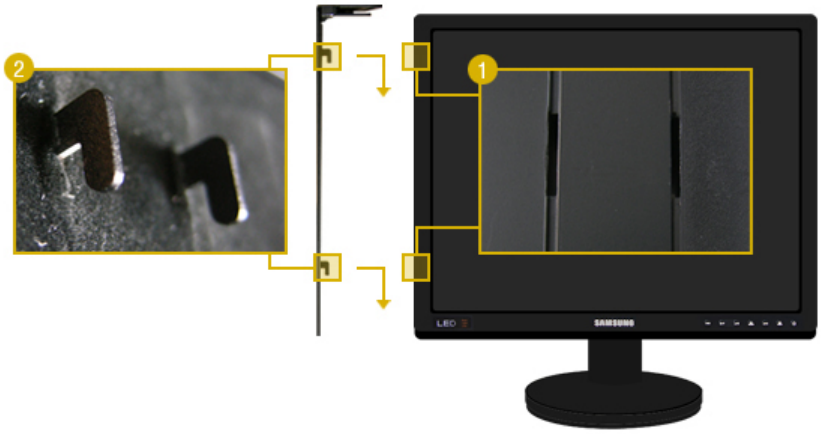
Installation Using the Hood

1) What is the Hood?
It is a device that can be attached to the top, right and left of the monitor to screen sunlight, preventing any color distortion. You can change the colors of the entire screen according to your preferences.



Insert the hooking parts (2) of both hoods starting from the top and moving downwards into the grooves (1) near the left and right edges at the back of the monitor.

Fit the top part of the monitor into the top of the grooves of both hoods.

Installing the Monitor Driver (Automatic)

When prompted by the operating system for the monitor driver, insert the CD-ROM included with this monitor. Driver installation is slightly different from one operating system to another. Follow the directions appropriate for the operating system you have.

Prepare a blank disk and download the driver program file at the Internet web site shown below.

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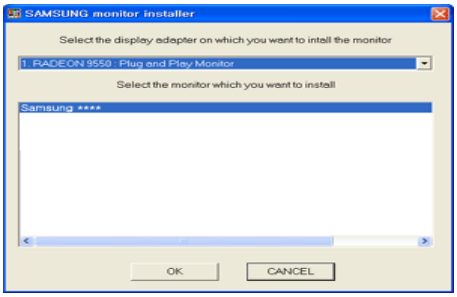
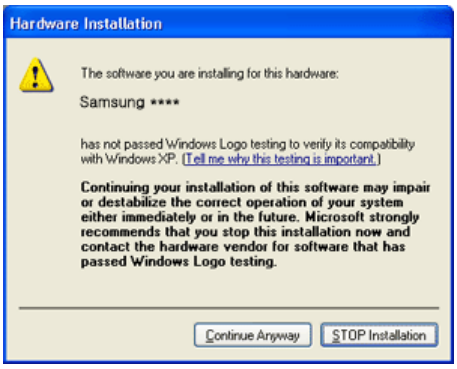
- Internet web site : http://www.samsung.com/ (Worldwide)
  http://www.samsung.com/monitor (U.S.A)
  http://www.sec.co.kr/monitor (Korea)
  http://www.samsungmonitor.com.cn/ (China)

1. Insert the CD into the CD-ROM drive.
2. Click **"Windows."**
3. Choose your monitor model in the model list, then click the **"OK"** button.


SAMSUNG monitor installer
Select the display adapter on which you want to intall the monitor
1. RADEON 9550 : Plug and Play Monitor
Select the monitor which you want to install
Samsung ****
OK
CANCEL

4. If you can see following message window, then click the **"Continue Anyway"** button. Then click the **"OK"** button. (Microsoft® Windows® XP/2000 Operating System)


Hardware Installation
The software you are installing for this hardware:
Samsung ****
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

This monitor driver is under certifying MS logo,and this installation dosen't damage your system.The certified driver will be posted on Samsung Monitor homepage
http://www.samsung.com/.

5. Monitor driver installation is completed.

Installing the Monitor Driver (Manual)

Windows XP | Windows 2000 |Windows Me |Windows NT | Linux

When prompted by the operating system for the monitor driver, insert the CD-ROM included with this monitor. Driver installation is slightly different from one operating system to another. Follow the directions appropriate for the operating system you have.

Prepare a blank disk and download the driver program file at the Internet web site shown below.

- Internet web site : http://www.samsung.com/ (Worldwide)
  http://www.samsung.com/monitor (U.S.A)
  http://www.sec.co.kr/monitor (Korea)
  http://www.samsungmonitor.com.cn/ (China)

Microsoft® Windows® XP Operating System

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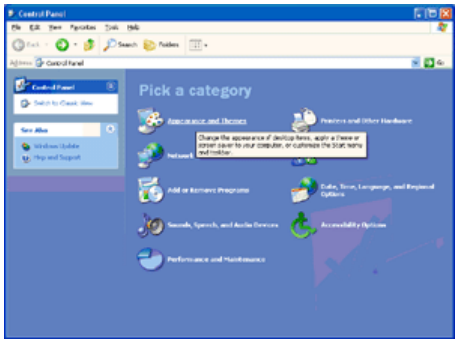
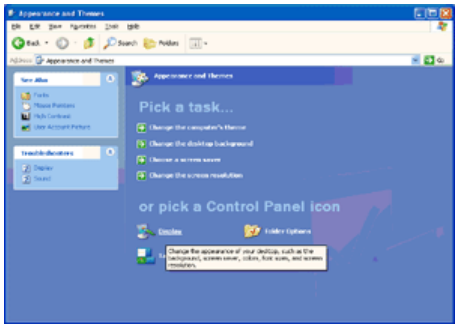
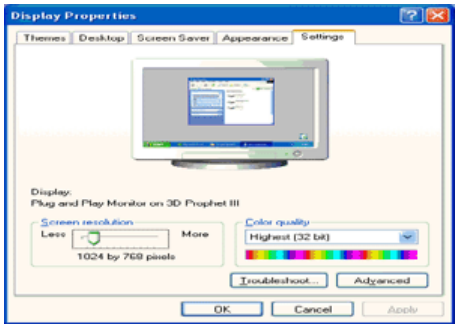
1. Insert the CD into the CD-ROM driver.
2. Click "**Start,**" click "**Control Panel,**" and then click the "**Appearance and Themes**" Icon.

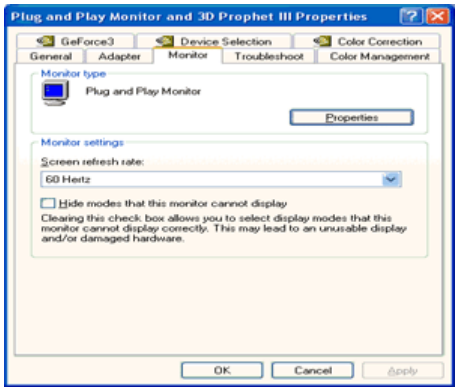


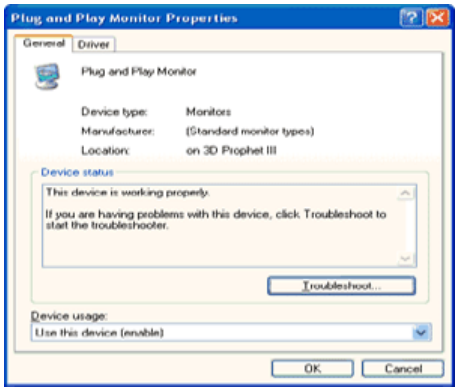
3. Click "**Display**" icon and choose the "**Settings**" tab then click "**Advanced.**"



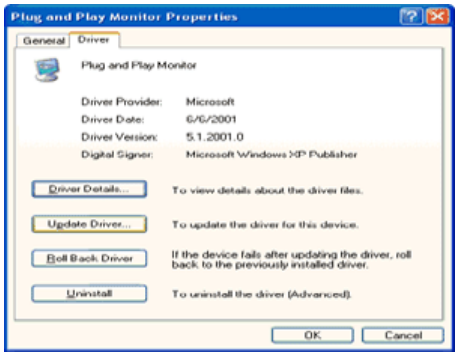


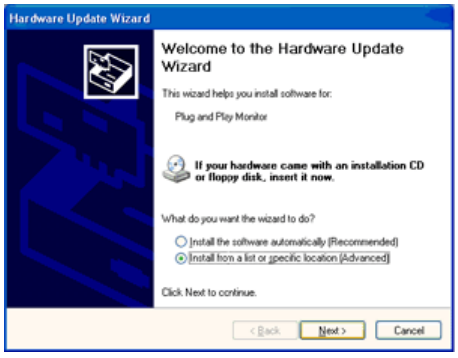
4. Click the "**Properties**" button on the "**Monitor**" tab and select "**Driver**" tab.





5. Click "**Update Driver.**" and select "**Install from a list or.**" then click "**Next**" button.




Hardware Update Wizard
Welcome to the Hardware Update Wizard
This wizard helps you install software for:
Plug and Play Monitor
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

6. Select "**Don't search ,I will**" then click "**Next**" and then click "**Have disk**".

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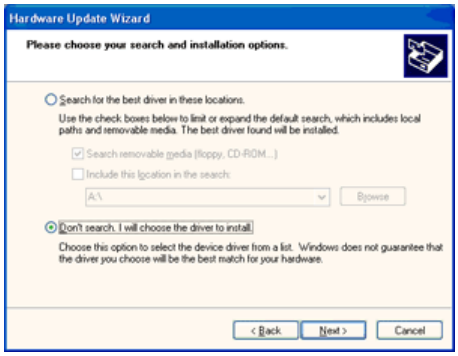
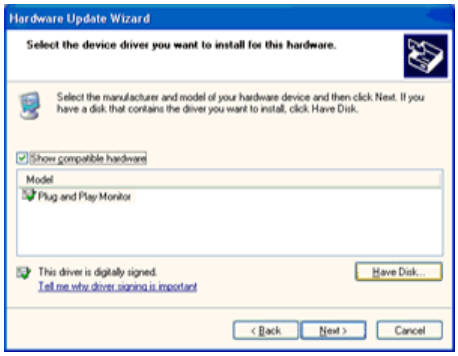
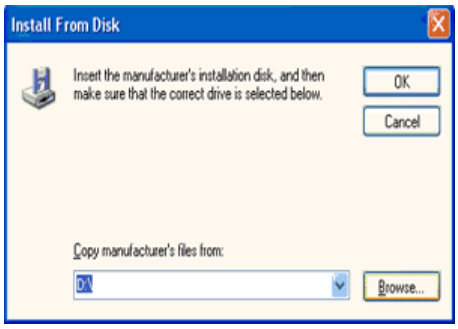
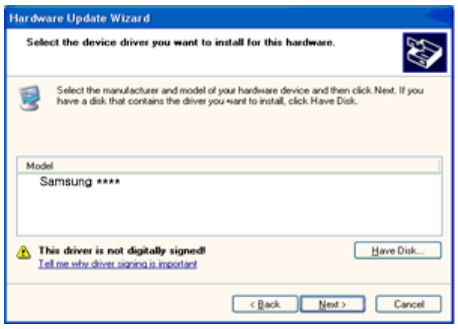

Hardware Update Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
A:\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

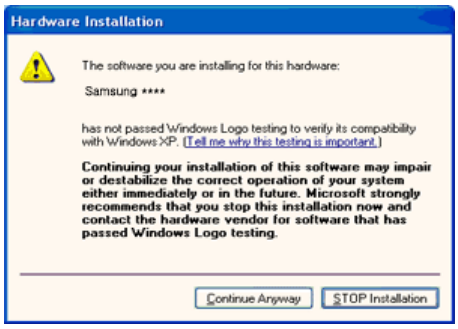

Hardware Update Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
Plug and Play Monitor
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

7. Click the "**Browse**" button then choose A:(D:\Driver) and choose your monitor model in the model list and click the "**Next**" button.




Hardware Update Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Model
Samsung ****
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

8. If you can see following "**Message**" window, then click the "**Continue Anyway**" button. Then click "**OK**" button.


Hardware Installation
The software you are installing for this hardware:
Samsung ****
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

This monitor driver is under certified MS logo,and this installation doesn't damage your system.The certified driver will be posted on Samsung Monitor homepage.
http://www.samsung.com/

9. Click the "**Close**" button then click "**OK**" button continually.

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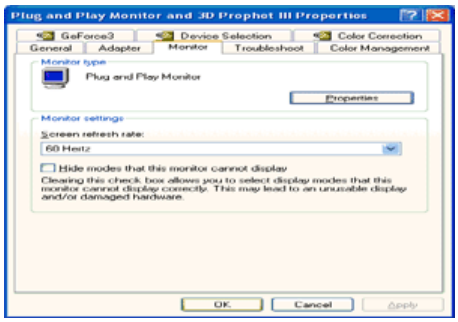

10. Monitor driver installation is completed.

Microsoft® Windows® 2000 Operating System

When you can see "Digital Signature Not Found" on your monitor, follow these steps.

1. Choose the "**OK**" button on the "**Insert disk**" window.
2. Click the "**Browse**" button on the "**File Needed**" window.
3. Choose A:(D:\Driver) then click the "Open" button and then click "**OK**" button.

How to install

1. Click "**Start**," "**Setting**," and then "**Control Panel**."
2. Double click the "**Display**" icon.
3. Choose the "**Settings**" tab and then click "**Advanced**."
4. Choose "**Monitor**."
   Case1: If the "Properties" button is inactive, it means your monitor is properly configured. Please stop installation
   Case2: If the "Properties" button is active, click the "Properties" button then follow next steps continually.
5. Click "**Driver**" and then click "**Update Driver**" then click the "Next" button.
6. Choose "**Display a list of the known drivers for this device so that I can choose a specific driver**" then click "**Next**" and then click "**Have disk**."
7. Click the "**Browse**" button then choose A:(D:\Driver).
8. Click the "**Open**" button, then click "**OK**" button.
9. Choose your monitor model and click the "**Next**" button then click "**Next**" button.
10. Click the "**Finish**" button then the "**Close**" button.

    If you can see the "**Digital Signature Not Found**" window then click the "**Yes**"button.
    And click the "**Finish**" button then the "**Close**" button.

Microsoft® Windows® Millennium Operating System

1. Click "**Start**," "**Setting**" and then "**Control Panel**."
2. Double click "**Display**" icon.
3. Select the "**Settings**" tab and click the "**Advanced Properties**" button.
4. Select the "**Monitor**" tab.
5. Click the "**Change**" button in the "**Monitor Type**" area.
6. Choose "**Specify the location of the driver**."
7. Choose "**Display a list of all the driver in a specific location.**" then click the "**Next**" button.
8. Click the "**Have Disk**" button
9. Specify A:\(D:\driver) then click "**OK**" button.
10. Select "**Show all devices**" and choose the monitor that corresponds to the one you connected to your computer and click "**OK**."
11. Continue choosing "**Close**" button and "**OK**" button until you close the Display Properties dialogue box.

Microsoft® Windows® NT Operating System

1. Click **Start**, **Settings**, **Control Panel**, and then double-click the **Display** icon.
2. In the Display Registration Information window, click the Settings tab and then click **All Display Modes**.
3. Select a mode that you wish to use (Resolution, Number of colors and Vertical frequency) and then click **OK**.
4. Click the **Apply** button if you see the screen working normally after clicking **Test**. If the screen is not normal, change to a different mode (lower mode of resolution, colors, or frequency).

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If there is no Mode at **All Display Modes**, select the level of resolution and vertical frequency by referring to the Preset Timing Modes in the user guide.

Linux Operating System

To execute X-Window, you need to make the X86Config file, which is a type of system setting file.

1. Press Enter at the first and the second screen after executing the X86Config file.
2. The third screen is for **setting your mouse**.
3. Set a mouse for your computer.
4. The next screen is for **selecting a keyboard**.
5. Set a Keyboard for your computer.
6. The next screen is for **setting your monitor**.
7. First of all, set a **horizontal frequency** for your monitor. (You can enter the frequency directly.)
8. Set a **vertical frequency** for your monitor. (You can enter the frequency directly.)
9. Enter the **model name of your monitor**. This information will not affect the actual execution of X-Window.
10. You have **finished** setting up your monitor.
    Execute X-Window after setting other requested hardware.

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The color and appearance of the product may vary depending on the model, and the product specifications are subject to change without prior notice for reasons of performance enhancement.

1. [▼/▲]This button allows you to adjust items in the menu.
2. [SOURCE]Press this button to activate a highlighted menu item.
3. [**AUTO**]Press to self-adjust to the incoming PC signal. The values of fine,coarse and position are adjusted automatically.
4. [MENU]Use this button to open the on-screen menu and exit from the menu screen or close screen adjustment menu.

AUTO

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Menu	Description
AUTO	When the '**AUTO**' button is pressed, the Auto Adjustment screen appears as shown in the animated screen on the center. Auto adjustment allows the monitor to self-adjust to the incoming video signal. The values of fine, coarse and position are adjusted automatically. (Available in analog mode only) To make the automatic adjustment function sharper, execute the 'AUTO' function while the AUTO PATTERN is on. - If auto adjustment does not work properly, press AUTO button again to adjust picture with more accuracy. - If you change resolution in the control panel, auto function will be executed automatically.

Locked

- AUTO button

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- MENU button

Menu	Description
Locked	This is the function that locks the OSD in order to keep the current states of settings or prevent others from adjusting the current settings. **Lock** : Hold down the MENU button for more than five (5) seconds to activate the OSD adjustment lock function. **Unlock** : Hold down the MENU button for more than five (5) seconds to deactivate the OSD adjustment lock function. You can adjust only the brightness and contrast of the monitor with the OSD adjustment locking feature.

Contrast

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Menu	Description
Contrast	When the OSD is not visible, push the button to adjust the Brightness.

Brightness

Menu	Description
Brightness	When OSD is not visible, push the button to adjust the Contrast.

SOURCE

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Menu	Description
SOURCE	Selects the video signal while the OSD is off.

Picture	Brightness	Contrast			
Color	Color Tone	Color Control	Gamma		
Image	Coarse	Fine	Sharpness	H-Position	V-Position
OSD	Language	H-Position	V-Position	Transparency	Display Time
Setup	Auto Source	Image Reset	Color Reset	Indicator	
Information					

Picture

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Menu	Description	Play/Stop
Brightness	You can use the on-screen menus to change the brightness according to personal preference. **Direct Access Feature** : When OSD is not on the screen, push the [☼] button to adjust brightness. [MENU → ↵ → ↵ → ▲, ▼ → MENU]	
Contrast	You can use the on-screen menus to change the contrast according to personal preference. [MENU → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	

UP

Color

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Menu	Description	Play/Stop
Color Tone	Adjusts color tones to the preference of the user. - Warm5~Warm1, Off, Cool1~Cool6 [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
Color Control	Adjusts individual R,G,B color balance. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
Gamma	Gamma correction changes the luminance of the colors with intermediate luminance. (-0.6 ~ +0.6) [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	

UP

Image

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Menu	Description	Play/Stop
Coarse	Removes noise such as vertical stripes. Coarse adjustment may move the screen image area. You may relocate it to the center using the horizontal control menu. (Available in analog mode only) [MENU → ▲, ▼ → ↵ → ↵ → ▲, ▼ → MENU]	
Fine	Removes noise such as horizontal stripes. If the noise persists even after fine tuning, repeat it after adjusting the frequency (clock speed). (Available in analog mode only) [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
Sharpness	Changes the clearance of image. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
H-Position	Changes the horizontal position of the monitor's entire display. (Available in analog mode only) [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
V-Position	Changes the vertical position of the monitor's entire display. (Available in analog mode only) [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	

UP

OSD

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Menu	Description	Play/Stop
Language	You can choose one of 9 languages. • English, Deutsch, Español, Français, Italiano, Svenska, Русский , Português , Türkçe **Note**:The language chosen affects only the language of the OSD. It has no effect on any software running on the computer. [MENU → ▲, ▼ → ↵ → ↵ → ▲, ▼ → MENU]	
H-Position	You can change the horizontal position where the OSD menu appears on your monitor. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
V-Position	You can change the vertical position where the OSD menu appears on your monitor. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
Transparency	Change the transparency of the background of the OSD. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
Display Time	The menu will be automatically turned off if no adjustments are made for a certain time period. You can set the amount of time the menu will wait before it is turned off. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	

UP

Setup

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Menu	Description	Play/Stop
Auto Source	Select **Auto Source** for the monitor to automatically select the signal source. [MENU → ▲, ▼ → ↵ → ↵ → ▲, ▼ → MENU]	
Image Reset	Image parameters are replaced with the factory default values. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
Color Reset	Color parameters are replaced with the factory default values. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	
Indicator	Turns all LEDs On or Off. If it seems that the light from the LEDs affects the brightness of the LCD, you can turn off the power to them by setting the Indicator to Off. When setting it to On again, all LEDs will again operate in accordance with the change in monitor status. [MENU → ▲, ▼ → ↵ → ▲, ▼ → ↵ → ▲, ▼ → MENU]	

UP

Information

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Menu	Description
Information	Shows a video source, display mode on the OSD screen. [MENU → ▲, ▼ → MENU]

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MagicRotation Help

Overview

What is MagicRotation?

Traditionally, computer displays allowed the user to view only in landscape mode.
In today's information age, more users need to view documents, web pages, emails, etc. in there day to day life. These types of applications can be better viewed in portrait mode where the entire contents are available on the screen. This greatly improves the user's productivity allowing him the flexibility to switch between landscape and portrait modes.

The MagicRotation Software from Samsung Electronics, Inc. provides the user with a rotation feature (0, 90, 180, 270 orientation) that facilitates the optimum utilization of computer display screen, better viewing and improved user productivity.

Basic Function

MagicRotation will support Windows™ 98 SE, Me, NT 4.0, 2000, XP Home and XP Professional.

* Windows™ is registered trademark of Microsoft Corporation,Inc.

The specifications are subject to change without notice.
MagicRotation is a trademark of SAMSUNG ELECTRONICS CO., LTD.
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Windows™ is registered trademark of Microsoft Corporation,Inc.

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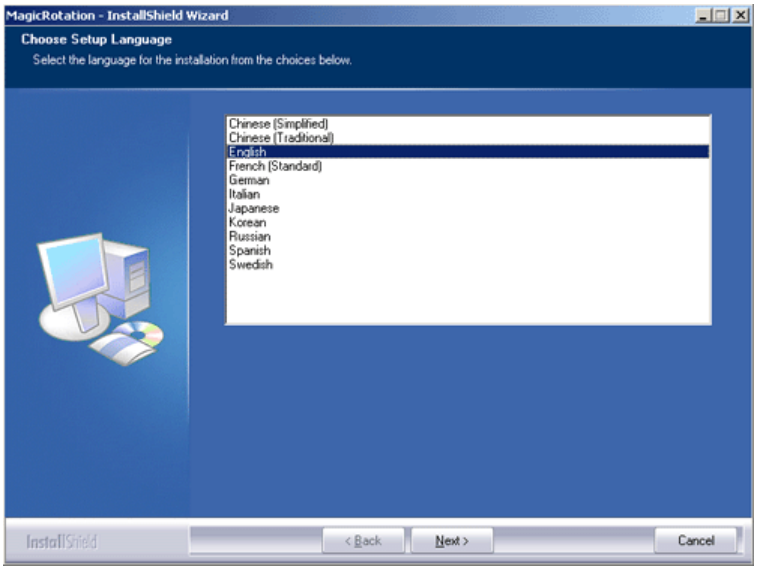
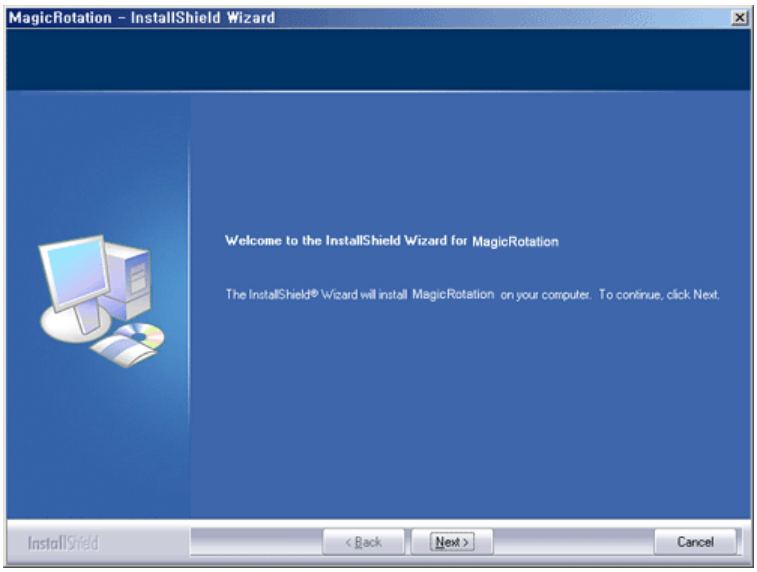
Installation

1. Insert the installation CD into the CD-ROM drive.
2. Click the MagicRotation installation file.
3. Select installation Language, Click "Next".



4. When the InstallShield Wizard window appears, click "Next."


MagicRotation - InstallShield Wizard
Welcome to the InstallShield Wizard for MagicRotation
The InstallShield® Wizard will install MagicRotation on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

5. Select "I accept the terms of the license agreement" to accept the terms of use.

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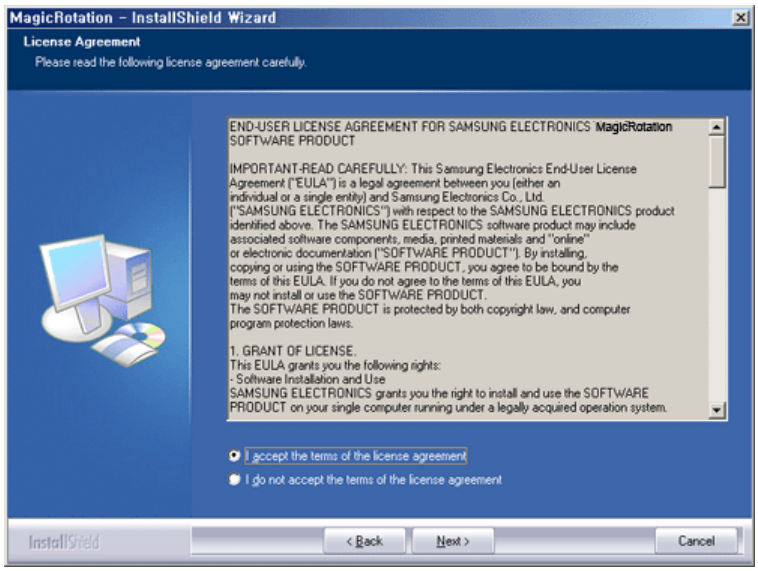
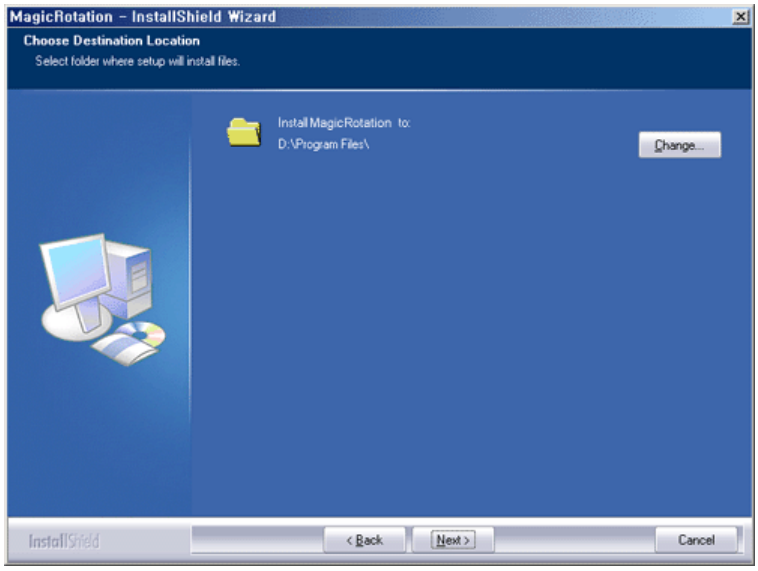
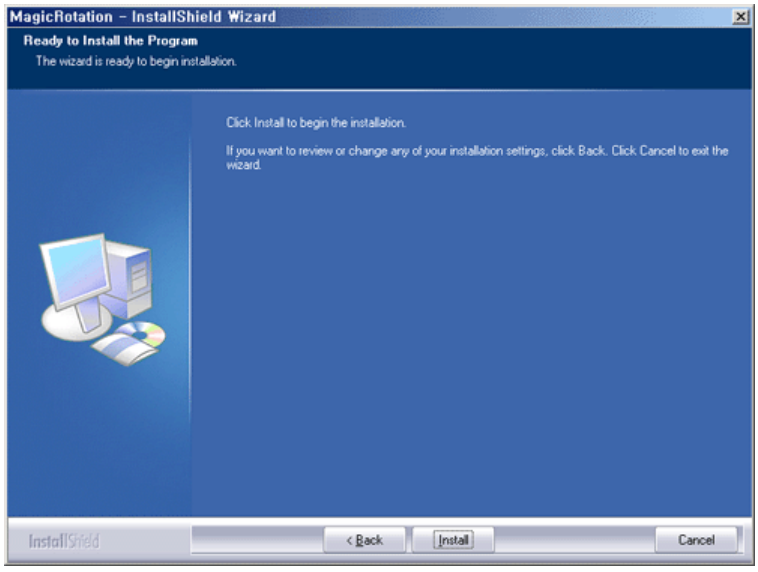

MagicRotation - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
END-USER LICENSE AGREEMENT FOR SAMSUNG ELECTRONICS MagicRotation SOFTWARE PRODUCT
IMPORTANT-READ CAREFULLY: This Samsung Electronics End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and Samsung Electronics Co., Ltd. ("SAMSUNG ELECTRONICS") with respect to the SAMSUNG ELECTRONICS product identified above. The SAMSUNG ELECTRONICS software product may include associated software components, media, printed materials and "online" or electronic documentation ("SOFTWARE PRODUCT"). By installing, copying or using the SOFTWARE PRODUCT, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, you may not install or use the SOFTWARE PRODUCT.
The SOFTWARE PRODUCT is protected by both copyright law, and computer program protection laws.
1. GRANT OF LICENSE.
This EULA grants you the following rights:
- Software Installation and Use
SAMSUNG ELECTRONICS grants you the right to install and use the SOFTWARE PRODUCT on your single computer running under a legally acquired operation system.
I accept the terms of the license agreement
I do not accept the terms of the license agreement
InstallShield
< Back
Next >
Cancel

6. Choose a folder to install the MagicRotation program.



7. Click "Install."


MagicRotation - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

8. The "Setup Status" window appears.

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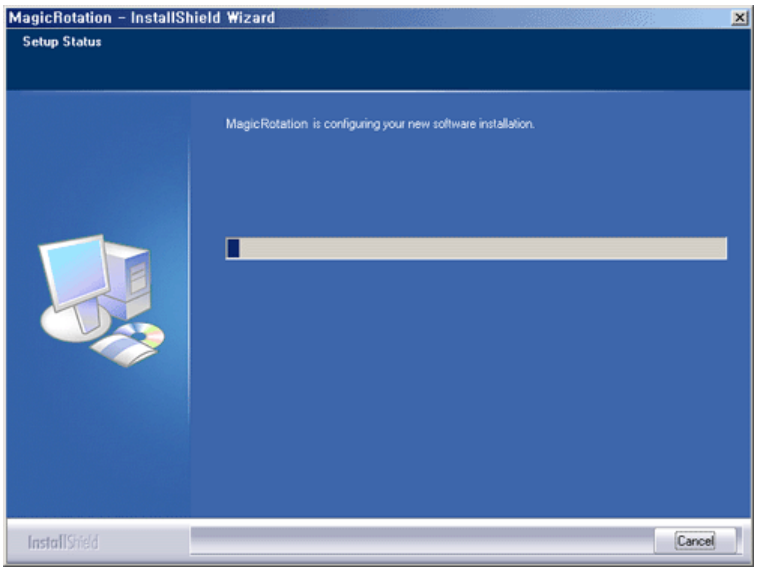
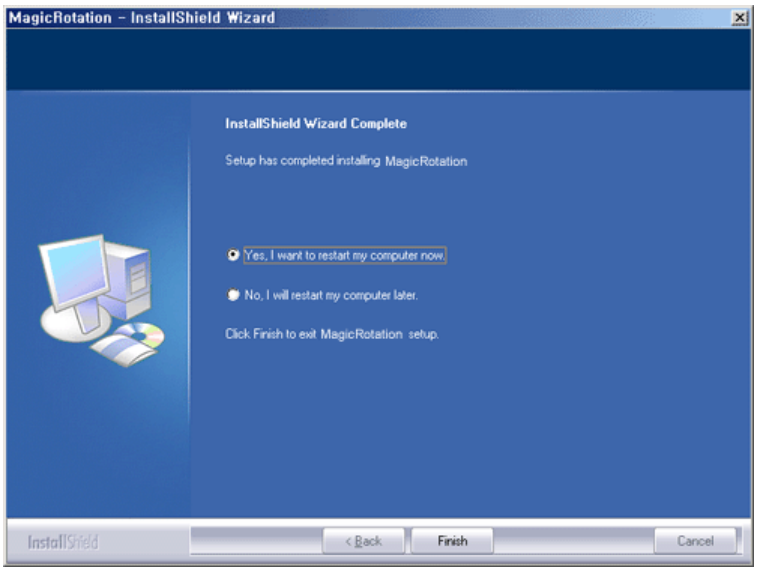


9. Click "Finish."

   Have to reboot the system in order for the MagicRotation to work properly.



10. When the installation is complete, the MagicRotation executable icon appears on your desktop.

Installation Problems

The installation of MagicRotation can be affected by the factors such as video card, motherboard and the network environment.
See "Troubleshooting" if you have trouble during installation.

Limitation

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1. The "Display Driver" should be properly loaded for the MagicRotation to work properly.
   The installed "Display Driver" should be the latest driver supplied by the vendor.

2. If some applications like Windows Media Player, Real Player, etc. are not displaying movie files properly in 90, 180 and 270 orientations then do the following :
   - Close the application.
   - Select the Orientation (90, 180, 270) you want to view the application.
   - Relaunch the application.

   In most cases this should fix the problem.

3. User Applications using OpenGL and DirectDraw (3D drawing) will not function as per the orientation mode selected (90, 180, 270).
   e.g. 3D games

4. DOS based applications in Full Screen Mode will not function as per the orientation mode selected (90, 180, 270).

5. Dual is not supported in Windows™ 98, ME, NT 4.0.

6. MagicRotation does not provide support for 24 bits per pixel (Bit depth/Color Quality).
7. If you are changing your Graphic Card it is recommended that you uninstall the MagicRotation Software before doing so.

System Requirements

OS

- Windows™ 98 SE
- Windows™ Me
- Windows™ NT 4.0
- Windows™ 2000
- Windows™ XP Home Edition
- Windows™ XP Professional

Hardware

- 128MB Memory above(recommended)
- 25MB Free Hard disk space above

Service Packs

- It is recommended that your System has the latest Service Pack installed.
- For Windows™ NT 4.0, it is recommended to install Internet Explorer 5.0 and above with Active Desktop component.

* For more information, visit the MagicRotation website.

* Windows™ is registered trademark of Microsoft Corporation,Inc.

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MagicRotation Help

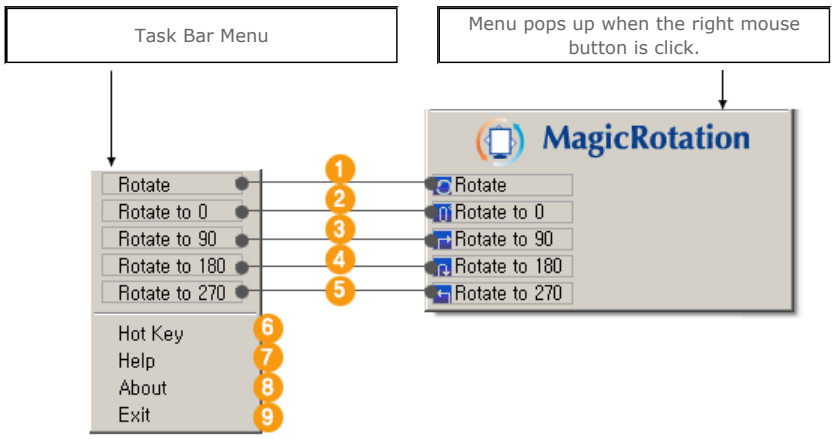
- **When Rotation is functioning, portion of MagicTune™ program may not operate normally.**
- **AutoRotation : The screens display will automatically rotate when the monitor is rotated.**

To execute Auto Rotation, it should be done as below.

- Please install both MagicRotation and MagicTune™ 3.6 programs in your computer.
- Launch MagicTune 3.6
- **Option** → **Preference** → Click the small box in the **enable task tray menu**.

- **MagicRotation™ program can not be provided as Simple Stand does not support Pivot function.**
- **The permitted angle of rotation of the monitor is determined by the model of the monitor.**

Interface



1 **Rotate** : Display will get rotated by the unit of 90 degree.

2 **Rotate to 0** : Display will get rotated to 0 degree from the current angle of Rotation.

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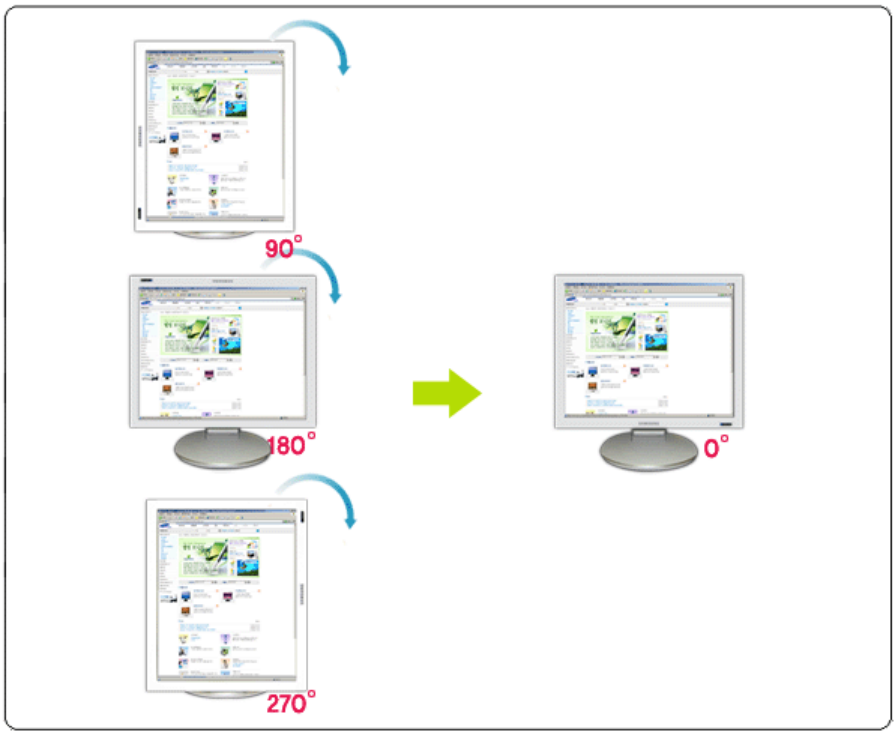
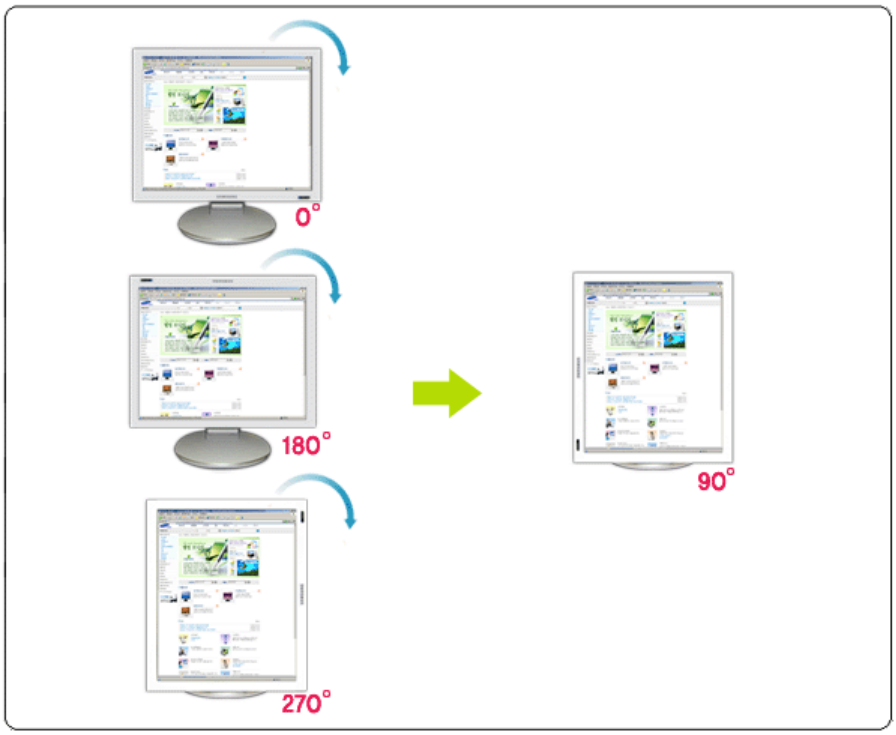


3 **Rotate to 90** : Display will be rotated 90 degrees from the current angle.



4 **Rotate to 180** : Display will be rotated 180 degrees from the current angle.

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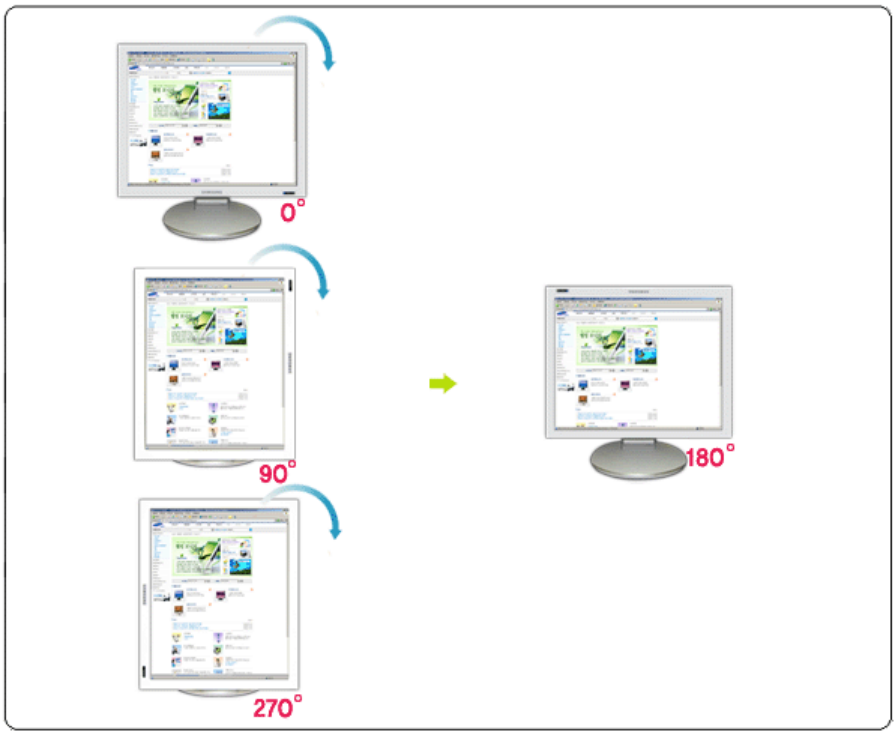
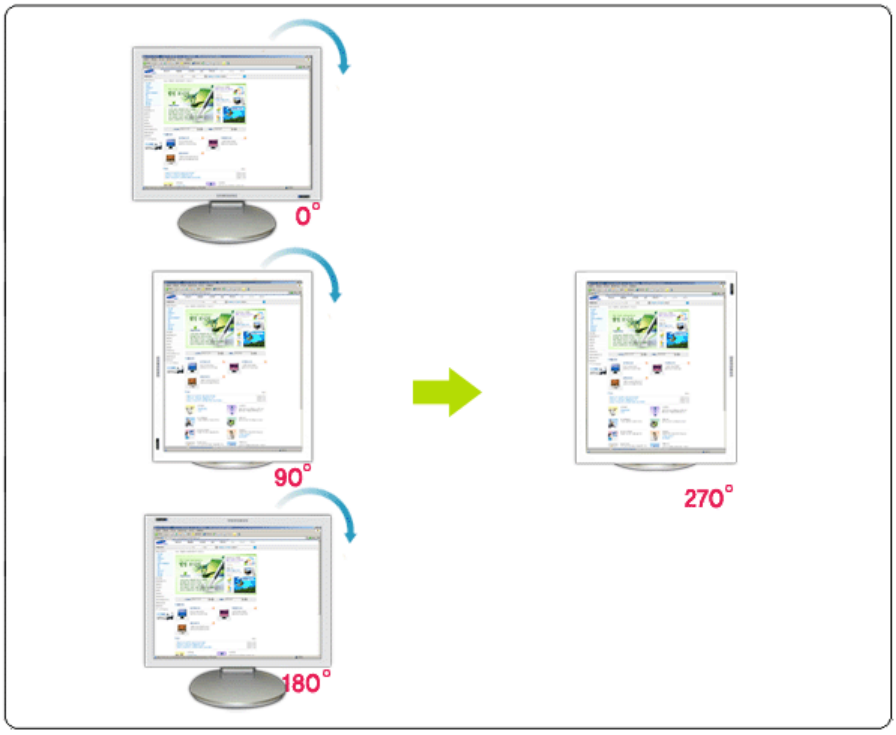


5 **Rotate to 270** : Display will be rotated 270 degrees from the current angle.



6 **Hot key** : Hot Keys are available by default and can be changed by user.
It can be assigned by user directly with keyboard after changing the existing HotKey . User can create the hot key with the combination of Shift, Ctrl, Alt and general keys. In case only general key is pressed, it will be assigned in the form of Alt+general key.

7 **Help** : Shows the HELP of MagicRotation program.

8 **About** : Shows the version and copyright of MagicRotation program.

9 **Exit** : Exits from MagicRotation program.

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Uninstall

The MagicRotation program can be removed only by using the "Add/Remove Programs" option of the Windows Control Panel.

Perform the following steps to remove MagicRotation.

1. Go to [Task Tray] ' [Start] ' [Settings] and select [Control Panel] in the menu.
   If the program runs on Windows™ XP, go to [Control Panel] in the [Start] menu.
2. Click the "Add/Remove Programs" icon in Control Panel.
3. In the "Add/Remove Programs" screen, scroll down to find "MagicRotation"
   Click on it to highlight it.
4. Click the "Change/Remove" button to remove the program.
5. Click "Yes" to begin the uninstall process.
6. Wait until the "Uninstall Complete" dialog box appears.
7. After uninstall restart the system to complete the uninstallation.

Visit the MagicRotation website for technical support for MagicRotation, FAQs (questions and answers) and software upgrades.

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Troubleshooting

Before You Call Technical Support

- MagicRotation Software works with the installed "Display Driver" supplied by your Graphic Card Vendor to provide screen rotation capabilities. If the installed "Display Driver" is working incorrectly or has bugs in it, then these bugs would still exist even after MagicRotation Software is installed.
  Any incorrect/random behaviour resulting due to problems in the installed "Display Driver" are not due to MagicRotation Software.

  In order to verify if a problem exists in the installed "Display Driver" , you can perform the following diagnostic steps :

  1. Check if the problem is occurring in both 0 orientation (Landscape mode) and 90 orientation (Portrait mode).
  2. Check if the problem occurs with different color depths (8/16/32 bits per pixel) and different resolution modes (800 x 600, 1024 x 768).
  3. Check if the problem occurs without installing MagicRotation Software.

  If the problem is repeating in any/all of the following scenarios then it may be the problem with your installed "Display Driver" :

  In order to correct the problem you need to perform the following steps :

  1. Uninstall MagicRotation Software.
  2. Obtain the latest "Display Driver" from your Graphic Card Vendor.
     The latest "Display Driver" from (ATI, NVIDIA, MATROX, INTEL, etc.) are easily available for download from their respective websites.
  3. Install the latest "Display Driver"
  4. Install MagicRotation Software. In most of the cases this should correct the problem.

- MagicRotation may not work in case monitor is replaced or driver of graphic card is updated while MagicRotation is operating.
  If so, please restart the system.

- Visit the MagicRotation website for technical support for MagicRotation, FAQs (questions and answers) and software upgrades.

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What is ImageViewer?

ImageViewer is a viewing program which shows the colors directly on the display device when an image is captured and created by a camera (Functionality of Monitor Viewer), and shows a print preview for an image as well (Functionality of Print Viewer). It is an updated version of PrintViewer.

What is MonitorViewer?

MonitorViewer displays an image in its inherent color space state. For example, when taking a photo with the camera set to sRGB, you can set your ImageViewer to the sRGB color space and view your photo as it was taken.
Thus, you can view your photos on a display device with the same settings as when they were taken. In addition, you can view photos taken in the sRGB color space, in AdobeRGB or another color space. This has the advantage of knowing how a color space creates image effects without actually taking a photo in that color space.

What is PrintViewer?

PrintViewer has the same function as the already existing PrintViewer. It shows a print preview of an image so that you know what it looks like when it is printed.

Using MonitorViewer

Step 01. Select a Folder

Select the folder that contains your photos using the File View window.

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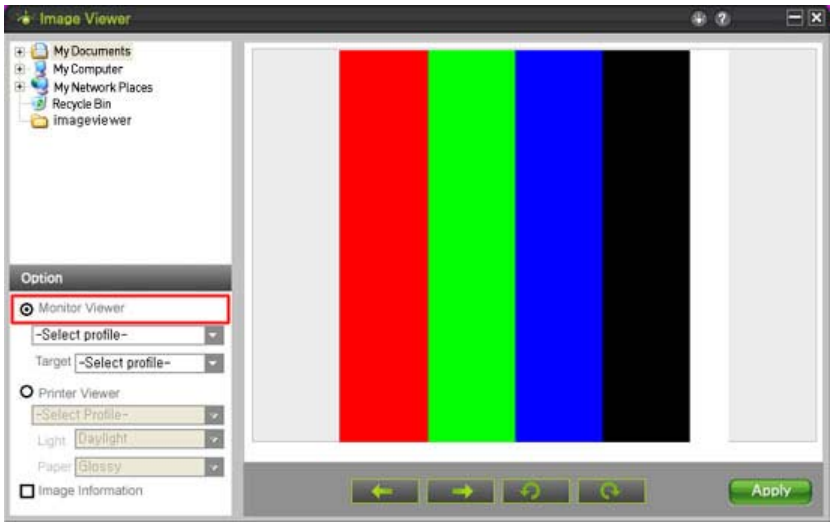
Step 02. Select a Photo

Select photos in the right pane.

Step 03. MonitorViewer



Select MonitorViewer in the left pane.
At this time, only the selected image selected is displayed.

Step 04. Select a Monitor Profile and a Target Profile

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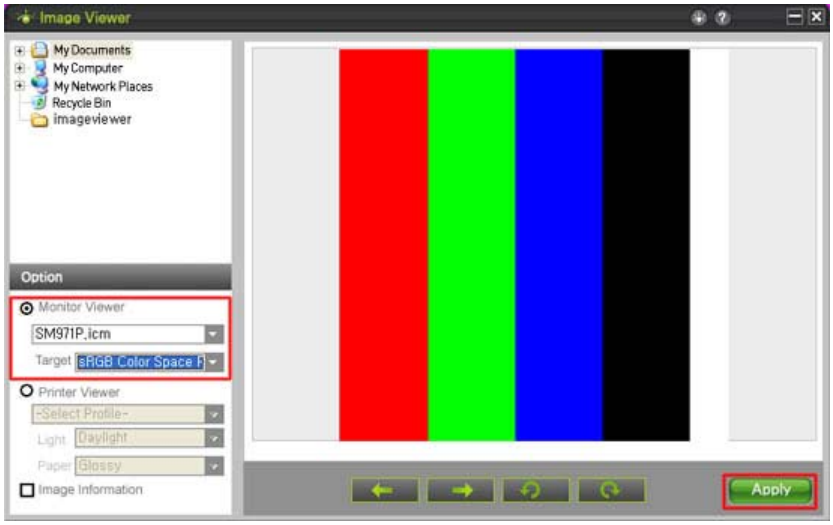
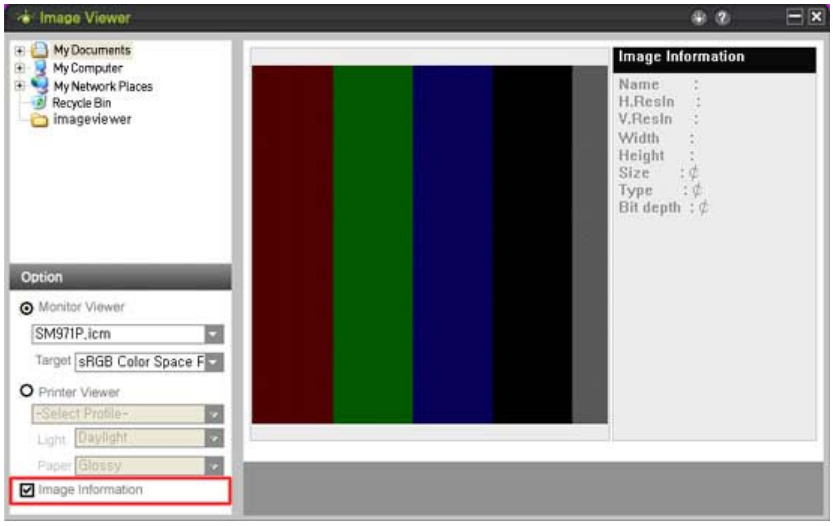


Select and apply the monitor profile and print the profile you are using.
Select the monitor profile for the monitor you are using.
Select a target profile while checking the image information, or select a color space.

Step 05. Image Information



Caution — To view the image information, you must select an image and then select the checkbox next to the image information. The image information is displayed on the right of the screen and the image information is generated when the image is created. It might not be generated when using an editing tool, depending on the settings of the camera that created that image.

Using PrintViewer

Step 01. Select a Folder

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Select the folder that contains your photos using the File View window.

Step 02. Select a Photo

Select photos in the right pane.

Step 03. PrintViewer

Select PrintViewer in the left pane.

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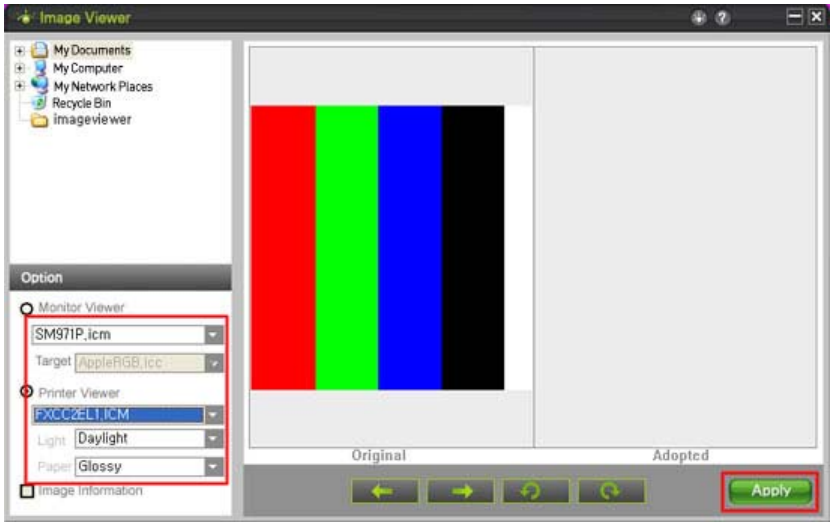
Step 04. Select a Monitor Profile and a Target Profile



Select a monitor profile and print the profile you are using.
Select the type of printing paper, the type of illumination and apply the changes.

Removing the Program

You can only remove ImageViewer by using the [Add/Remove Programs] applet.
To remove ImageViewer, follow these steps:

1. Click on the [Start] menu, and [Settings] and then the [Control Panel]. For Windows™ XP, click on the [Start] menu and then the [Control Panel].
2. Double-click the [Add/Remove Programs] icon on the [Control Panel].
3. Select ImageViewer by clicking on it on the [Add/Remove Programs] window. You may need to scroll down to find it.
4. Click [Change/Remove].
5. Click "Yes" to start removing ImageViewer.
6. Wait until the message that the removal is finished is displayed.
7. You should restart your computer to remove the program completely.

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Natural Color Expert

Installing Natural Color Expert and Installation Requirements

Installing Natural Color Expert on your PC.
The following requirements must be met to run Natural Color Expert. Please verify whether the following requirements are met before continuing the installation.

If all requirements listed above have been met, run Natural Color Expert on your PC. If the Color Calibration OSD is displayed when the monitor menu key is pressed, it means it is available.

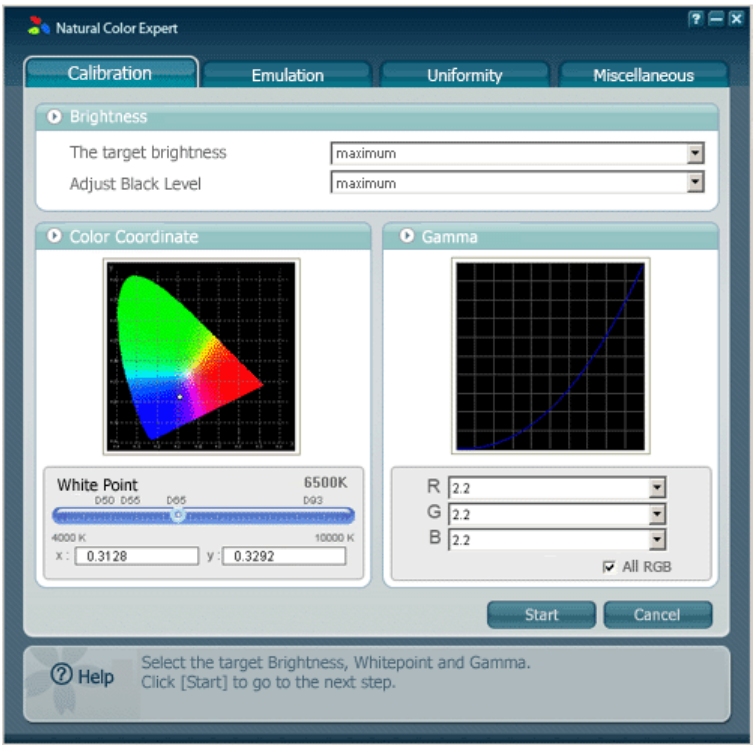
Natural Color Expert will not run if your monitor is in dual mode.

Natural Color Expert

Natural Color Expert is a program developed by Samsung to maximize and optimize the capability of the Syncmaster XL20 monitor for broad color bands. It was developed to adjust the color characteristic offsets for each monitor which can occur due to mass production. A Color Calibrator is provided which allows the color characteristics of your monitor to be calibrated according to your needs.
With Natural Color Expert, you can create an icc profile for your monitor only. If required, you can also create an icc profile with some changed monitor characteristics. Save this icc profile to your PC and as the color mode of your monitor also, which allows you to view colors in a defined color space just by changing the color mode of your monitor. You do not need to use a separate CMS program such as Photoshop.
Natural Color Expert contains four (4) tabs: Calibration, Emulation, Uniformity, and Miscellaneous. The Calibration tab allows you to create an icc file. The Emulation tab allows you to change the monitor characteristics by converting color bands. The Uniformity tab allows you to enhance the uniformity of your monitor. The Miscellaneous tab measures the current status of your monitor.

| **Calibration** | **Emulation** | **Uniformity** | **Miscellaneous** |

01 Calibration



With the Calibration tab, you can create an icc profile with the settings you configure.
You can also create an icc profile with adjustments of the maximum brightness, black level,

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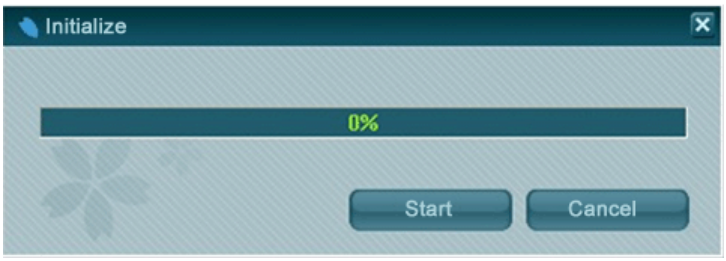
gamma, and white point, except for the color bands. All created icc profiles are saved in the "C:WINDOWS₩system32₩spool₩drivers₩color" folder. You can also use an icc profile as the monitor profile in a CMS program such as Photoshop. In addition, you can save the settings in this tab as the calibration mode which constitutes a part of the color mode of your monitor. Once saved, you can easily select the saved set of settings using the Mode button.
However, you can only save one set of settings for the calibration mode of your monitor. That is, only the most recently saved set of settings is available and valid.

How to use

01 Select the values.

Brightness :	The target brightness: Select your personal maximum brightness. Adjust Black Level : Select a black level.
Color Coordinate :	White Point : Directly enter a coordinate, or move the white slider on the blue bar to the required value position.
Gamma :	Select Gamma values for the R, G, and B components.

02 If you have selected your personal settings, click the Start button.



If the window shown in the figure above (▲) appears, click the Start button again.

If the window shown in the figure above (▲) appears, attach your Calibrator as shown in the figure above and click the Proceed button. Calibration will start.
To exit the program during the calibration, press the **Ctrl+Alt+Del** keys and click Finish.

03 After completing the calibration, the window shown in the figure below will appear. Then remove your Calibrator and click the OK button.

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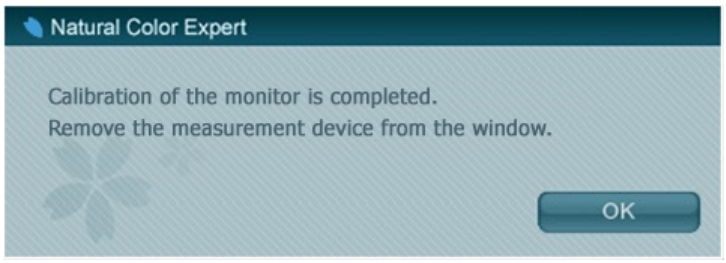
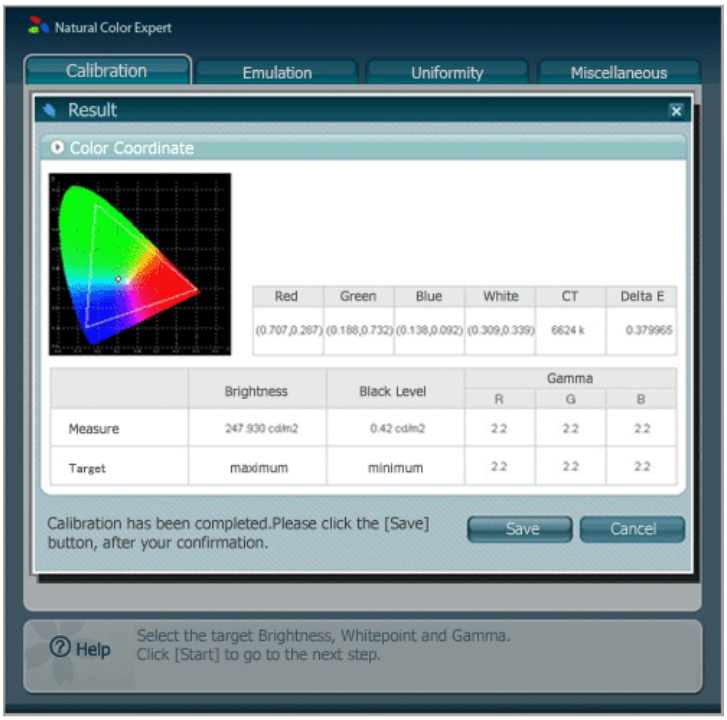
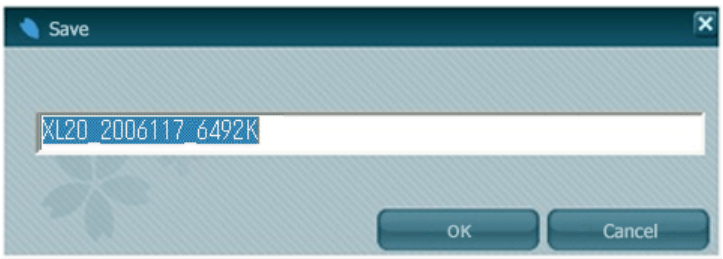


04 The calibrated values will now be shown. Verify the values, and click the Save button to save the settings.



Type in a name for the profile and click the OK button.



You will be asked whether to save the calibrated settings to your monitor. To save them, click the OK button. It takes some time to save these settings. The calibrated settings saved on the monitor are saved as the calibration mode which constitutes a part of the color mode of your monitor. From now on, your monitor will use the saved settings whenever calibration mode is selected.

05 When finished, click the Cancel button.

When exiting the program after saving the changed settings as the calibration mode, the color mode of your monitor will change to the just saved current calibration mode. If the program is not exited normally because communication to the monitor is disconnected, the "Color Calibration" message will appear when pressing the OSD. If this occurs, run the program again and exit it normally.

| Calibration | Emulation | Uniformity | Miscellaneous |

02 Emulation

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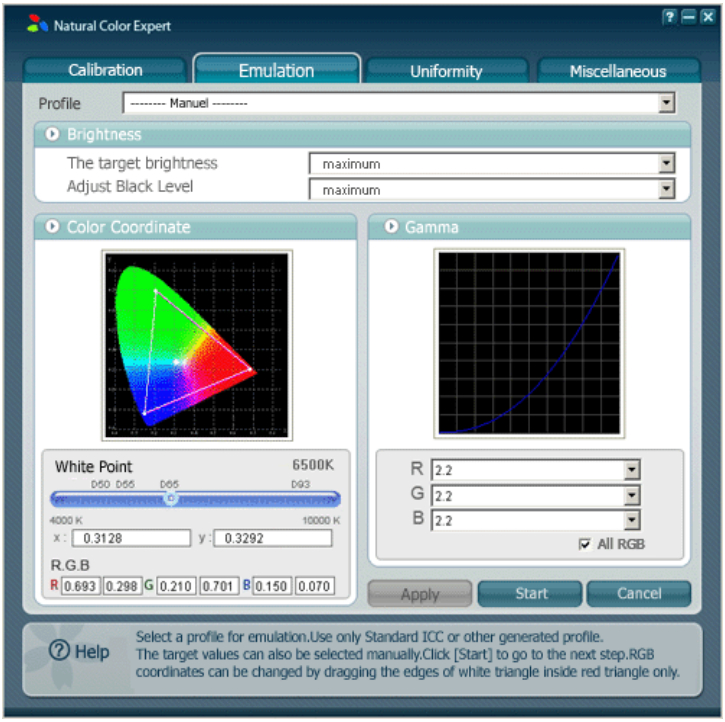


Using the Emulation tab, you can create a new profile that contains your selected settings, apply an existing profile, or apply a stereotype of a system profile. Different from a profile created from the Calibration tab, you can also change the R, G, and B color gamma. Of course, you cannot use a gamma value beyond the range of gamma values that can be expressed by your Edison monitor.

How to use

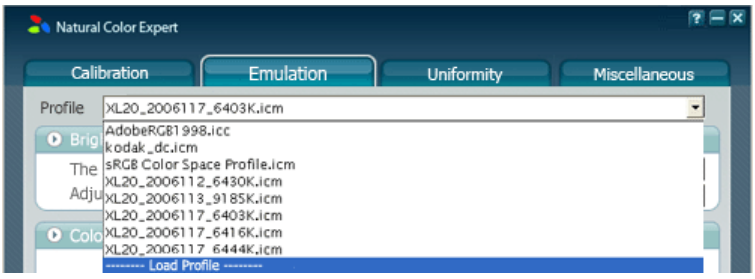
To emulate using a new set of settings,

01 select your values.

Brightness :	The target brightness: Select your personal maximum brightness. Adjust Black Level : Select a black level.
Color Coordinate :	White Point : Directly enter a coordinate, or move the white slider on the blue bar to the required value position.
Gamma :	Select Gamma values for the R, G, and B components.

To apply a created profile to your monitor,

To create a monitor profile using a system profile or an existing profile created, select a profile from the Profile list and click the Start button. If your profile is not in the list, click the Load Profile button and select it.



When selecting a profile for which you already performed emulation, you can skip step 2 in the Calibration section and apply the settings directly by clicking the Apply Now button. However, downloading the settings to your monitor is not possible because it is assumed that downloading them was already performed at the early stage of execution. Therefore, if you want to download the settings to your monitor, you should not click the Apply Now button and you should proceed with step 2 described in the Calibration section.

02 These are the same as steps 2 and 3 of Calibration. They show the emulated values.

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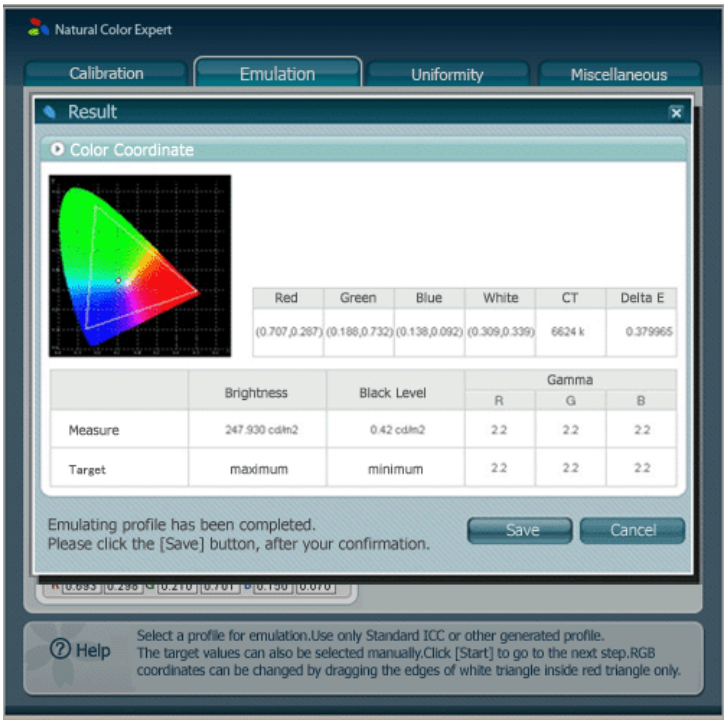
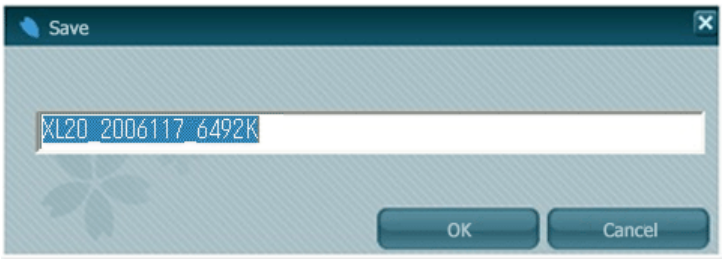
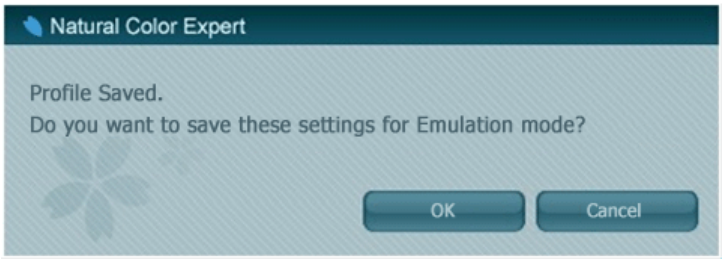


03 Verify the values, and click the Save button to save the settings.



Type in a name for the profile and click the OK button.

04 You will be asked whether to save the emulated settings to your monitor. To save, click the OK button. It will take some time to save these settings. The emulated settings saved in the monitor are saved as the emulation mode which constitutes a part of the color mode of your monitor. From now on, your monitor will be displayed with the saved settings whenever emulation mode is selected.



05 When finished, click the Exit button.

When exiting the program after saving the changed settings as the emulation mode, the color mode of your monitor will change to the just saved current emulation mode. If the program is not exited normally because communication to the monitor is disconnected, the "Color Calibration" message will appear when pressing the OSD. If this occurs, run the program again and exit it normally.

| Calibration | Emulation | Uniformity | Miscellaneous |

03 Uniformity

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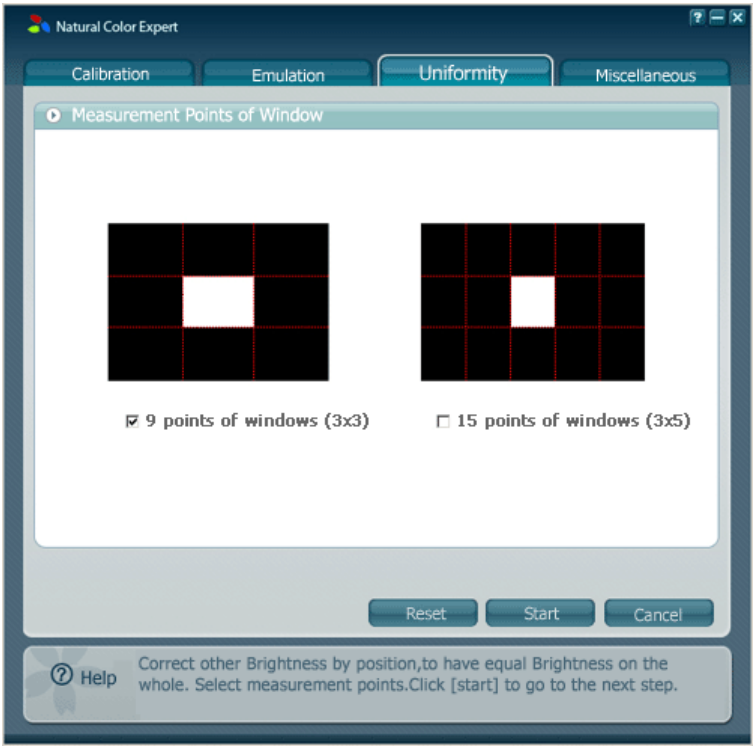

Using the Uniformity tab, you can improve the uniformity of your Edison monitor. This tab measures and improves the uniformity for your monitor.

How to use

01 Select a number of points of the window you want to measure and click the Start button.

02 These processes are the same as steps 2 and 3 of Calibration.

03 After measuring the uniformity for the center window, move and attach your Calibrator from the top left to the right of your monitor whenever a message appears and measure the uniformity for each location.

04 When finished, the program will automatically improve the uniformity of your monitor.

| Calibration | Emulation | Uniformity | Miscellaneous |

04 Miscellaneous

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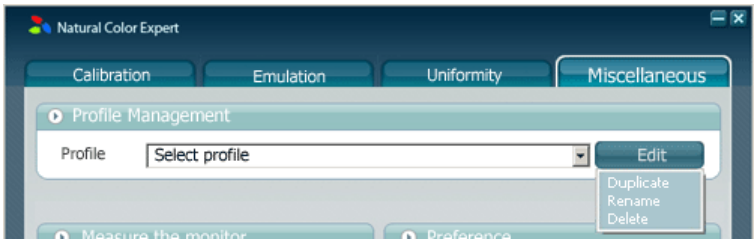
How to use

01 Profile Management

- Allows you to copy, delete, and rename a profile created from the Calibration or Emulation tab.



02 Measure the monitor

- Measures the current status of your monitor.

03 Preference

Allows you to select the period of time after which your monitor should be calibrated again in the future.

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The color and appearance of the product may vary depending on the model, and the product specifications are subject to change without prior notice for reasons of performance enhancement.

Check List

Before calling for assistance, check the information in this section to see if you can remedy any problems yourself. If you do need assistance, please call the phone number on the Information section or contact your dealer.

Symptom	Check List	Solutions
No images on the screen. I cannot turn on the monitor.	Is the power cord connected properly?	Check the power cord connection and supply.
	Can you see **"Check Signal Cable"** on the screen?	**(Connected using the DVI cable)** If you still see an (error) message on the screen when the monitor is connected properly, check to see if the monitor status is set to analog. Press ' SOURCE' button to have the monitor double-check the input signal source.
	If the power is on, reboot the computer to see the initial screen (the login screen), which can be seen.	If the initial screen (the login screen) appears, boot the computer in the applicable mode (the safe mode for Windows ME/XP/2000) and then change the frequency of the video card. (Refer to Preset Timing Modes) Note: If the initial screen (the login screen) does not appear, contact the Service Center or your dealer.
	Can you see **"Not Optimum Mode", "Recommended Mode 1600 x 1200 60 Hz"** on the screen?	You can see this message when the signal from the video card exceeds the maximum resolution and frequency that the monitor can handle properly. Adjust the maximum resolution and frequency that the monitor can handle properly. If the display exceeds UXGA or 75 Hz, a **"Not Optimum Mode", "Recommended Mode 1600 x 1200 60 Hz"** message is displayed. If the display exceeds 85 Hz, the

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		display will work properly but the **"Not Optimum Mode", "Recommended Mode 1600 x 1200 60 Hz"** message appears for one minute and then disappears. Please change to the recommended mode during this one-minute period. (The message is displayed again if the system is rebooted.)
	There is no image on the screen. Is the power indicator on the monitor blinking at 1 second intervals?	The monitor is in PowerSaver mode. press a key on the keyboard to activate the monitor and restore the image on the screen. If there is still no image, press the ' SOURCE' button. Then press any key on the keyboard again to activate the monitor and restore the image on the screen.
	Connected using the DVI cable?	You may get a blank screen if you boot the system before you connect the DVI cable, or disconnect and then reconnect the DVI cable while the system is running as certain types of graphic cards do not send out video signals. Connect the DVI cable and then reboot the system.
I cannot see the On Screen Display.	Have you locked the On Screen Display (OSD) Menu to prevent changes?	Unlock the OSD by pressing the MENU button for at least 5 seconds.
The screen shows strange colors or just black and white.	Is the screen displaying only one color as if looking at the screen through a cellophane paper?	Check the signal cable connection.Make sure the video card is fully inserted in it's slot.
	Have the screen colors become strange after running a program or due to a crash between applications?	Reboot the computer.
	Has the video card been set properly?	Set the video card by referring to the video card manual.
The screen suddenly has become unbalanced.	Have you changed the video card or the driver?	Adjust screen image position and size using the OSD.
	Have you adjusted the resolution or frequency to the monitor?	Adjust the resolution and frequency at the video card. (Refer to the Preset Timing Modes).
	The screen can be unbalanced due to the cycle of the video card signals. Readjust Position by referring to the OSD.	
The screen is out of focus or OSD cannot be adjusted.	Have you adjusted the resolution or frequency on the monitor?	Adjust the resolution and frequency of the video card. (Refer to the Preset Timing Modes).
LED is blinking but no images on the screen.	Is the frequency properly adjusted when checking the Display Timing on the menu?	Adjust the frequency properly by referring to the video card manual and the Preset Timing Modes. (The maximum frequency per resolution may differ from product to product.)
There are only 16 colors shown on the screen.	Have the Windows colors been set properly?	Windows ME/2000/XP: Set the colors properly at the **Control Panel → Display →**

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The screen colors have changed after changing the video card.		**Settings**.
	Has the video card been set properly?	Set the video card by referring to the video card manual.
There is a message that reads "Unrecognized monitor, Plug & Play (VESA DDC) monitor found".	Have you installed the monitor driver?	Install the monitor driver according to the Driver Installation Instructions.
	See the video card manual to see if the Plug & Play (VESA DDC) function can be supported.	Install the monitor driver according to the Driver Installation Instructions.

Check the following items if there is trouble with the monitor.

1. Check if the power cord and the video cables are properly connected to the computer.
2. Check if the computer beeps more than 3 times when booting.
   (If it does, request an a service for the main board of the computer.)
3. If you installed a new video card or if you assembled the PC, check if the installed the adapter (video) driver and the monitor driver.
4. Check if the scanning ratio of the video screen is set to between 56 Hz ~ 75 Hz.
   (Do not exceed 60 Hz when using the maximum resolution.)
5. If you have problems in installing the adapter (video) driver, boot the computer in Safe Mode, remove the Display Adapter in the "**Control Panel→System→Device Administrator**" and then reboot the computer to reinstall the adapter (video) driver.

If problems repeatedly occur, contact an authorized service center.

Q & A

Question	Answer
How can I change the frequency?	The frequency can be changed by reconfiguring the video card. Note that video card support can vary, depending on the version of the driver used. (Refer to the computer or the video card manual for details.)
How can I adjust the resolution?	Windows ME/XP/2000 : Set the resolution in the Control Panel → Display → Settings. * Contact the video card manufacturer for details.
How can I set the Power Saving function?	Windows ME/XP/2000 : Set the function in the BIOS-SETUP of the computer or the screen saver. (Refer to the Windows / Computer Manual).
How can I clean the outer case/LCD Panel?	Disconnect the power cord and then clean the monitor with a soft cloth, using either a cleaning solution or plain water. Do not leave any detergent or scratches on the case. Do not let any water enter the monitor.

Self-Test Feature Check

Self-Test Feature Check | Warning Messages | Environment | Useful Tips

Your monitor provides a self test feature that allows you to check whether your monitor is functioning properly.

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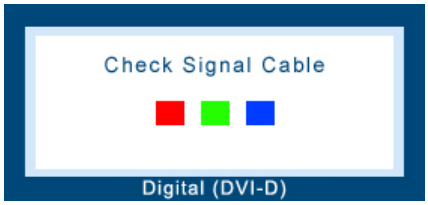
Self-Test Feature Check

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.
   If the monitor is functioning properly, you will see a box in the illustration below.

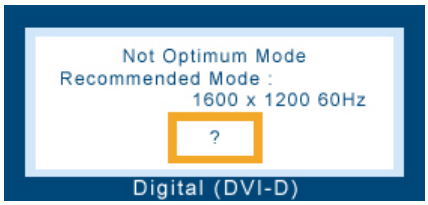


   This box appears during normal operation if the video cable becomes disconnected or damaged.

4. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.
   If your monitor screen remains blank after using the previous procedure, check your video controller and computer system; your monitor is functioning properly.

Warning Messages

If there is something wrong with the input signal, a message appears on the screen or the screen goes blank although the power indicator LED is still on. The message may indicate that the monitor is out of scan range or that you need to check the signal cable.



Environment

The location and the position of the monitor may influence the quality and other features of the monitor.

1. If there are any sub woofer speakers near the monitor, unplug and relocate the woofer to another room.
2. Remove all electronic devices such as radios, fans, clocks and telephones that are within 3 feet (one meter) of the monitor.

Useful Tips

- A monitor recreates visual signals received from the computer. Therefore, if there is a problem with the computer or the video card, this can cause the monitor to become blank, have poor coloring, become noisy, and video mode not supported, etc. In this case, first check the source of the problem, and then contact the Service Center or your dealer.
- **Judging the monitor's working condition**
  If there is no image on the screen or a **"Not Optimum Mode", "Recommended Mode 1600 x 1200 60 Hz"** message comes up, disconnect the cable from the computer while the monitor is still powered on.
  - If there is a message coming up on the screen or if the screen goes white, this means the monitor is in working condition.
  - In this case, check the computer for trouble.

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The color and appearance of the product may vary depending on the model, and the product specifications are subject to change without prior notice for reasons of performance enhancement.

General

General	
Model Name	SyncMaster XL20
LCD Panel	
Size	20 inch (51 cm)
Display area	408.0(H) x 306.0(V)
Pixel Pitch	0.255(H) x 0.255(W)
Synchronization	
Horizontal	31kHz ~ 81kHz
Vertical	56Hz ~ 75Hz
Display Color	
8 bit color (16.7M)	
Resolution	
Optimum resolution	1600x1200@60Hz
Maximum resolution	1600x1200@60Hz
Input Signal, Terminated	
RGB Analog, DVI(Digital Visual Interface) Compliant Digital RGB 0.7 Vp-p ± 5% TTL level (V high ≥ 2.0V, V low ≤ 0.8V)	
Maximum Pixel Clock	
162MHz	
Power Supply	
AC 100-240~V (+/- 10 %),60 / 50Hz ± 3Hz	
Signal Cable	
DVI-A to 15pin D-sub cable, Detachable DVI-D to DVI-D connector, Detachable	
Dimensions (WxHxD)/ Weight	
448.0 x 358.5 x 89.0 mm / 17.6 x 14.1 x 3.5 inch (Without Stand)	

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448.0 x 390.8 x 220.0 mm / 17.6 x 15.4 x 8.7 inch (With Stand), 7.2 Kg / 15.9 lbs

VESA Mounting Interface

100 mm x 100 mm

Environmental considerations

Operating	Operating Temperature : 50 °F ~ 104 °F (10 °C ~ 40 °C) Humidity : 10% ~ 80%, non-condensing
Storage	Storage Temperature : -4 °F ~ 113 °F (-20 °C ~ 45 °C) Humidity : 5% ~ 95%, non-condensing

Plug and Play Capability

This monitor can be installed on any Plug & Play compatible system. The interaction of the monitor and the computer systems will provide the best operating conditions and monitor settings. In most cases, the monitor installation will proceed automatically, unless the user wishes to select alternate settings.

Dot Acceptable

TFT LCD panels manufactured by using advanced semiconductor technology with precision of 1ppm (one millionth) above are used for this product. But the pixels of RED, GREEN, BLUE and WHITE color appear to be bright sometimes or some black pixels may be seen. This is not from bad quality and you can use it without any problelms.

- For example, the number of TFT LCD sub pixels that is contained in this product are 5,760,000.

Note: Design and specifications are subject to change without prior notice.

Class B Equipment (Information Communication equipment for residential use)

This product complies with the Electromagnetic Compatibility Directives for residential use and can be used in all areas including common residential areas.

(Class B equipment emits less electromagnetic waves than Class A equipment.)

PowerSaver

This monitor has a built-in power management system called PowerSaver. This system saves energy by switching your monitor into a low-power mode when it has not been used for a certain amount of time. The monitor automatically returns to normal operation when you press a key on the keyboard. For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods. The PowerSaver system operates with a VESA DPMS compliant video card installed in your computer. Use a software utility installed on your computer to set up this feature.

State	Normal Operation	Power saving mode	Power off EPA/ENERGY 2000
Power Indicator	Blue	Blue blinking	Black
Power Consumption	Less than 85 watts	Less than 2 watts	Less than 1 watts

This monitor is EPA ENERGY STAR® compliant and ENERGY2000 compliant when used with a computer equipped with VESA DPMS functionality.
As an ENERGY STAR® Partner, SAMSUNG has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

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Preset Timing Modes

If the signal transferred from the computer is the same as the following Preset Timing Modes, the screen will be adjusted automatically. However, if the signal differs, the screen may go blank while the power LED is on. Refer to the video card manual and adjust the screen as follows.

Table 1. Preset Timing Modes

Display Mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, 640 x 350	31.469	70.086	25.175	+/-
IBM, 640 x 480	31.469	59.940	25.175	-/-
IBM, 720 x 400	31.469	70.087	28.322	-/+
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC, 1152 x 870	68.681	75.062	100.000	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	-/-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.000	+/+
VESA, 1280 x 960	60.000	60.000	108.000	+/+
VESA, 1280 x 1024	63.981	60.020	108.000	+/+
VESA, 1280 x 1024	79.976	75.025	135.000	+/+
VESA,1600 x 1200	75.000	60.000	162.000	+/+

Horizontal Frequency

The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle and the inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

Vertical Frequency

Like a fluorescent lamp, the screen has to repeat the same image many times per second to display an image to the user. The frequency of this repetition is called Vertical Frequency or Refresh Rate. Unit: Hz

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Model
SyncMaster XL20
The color and appearance of the product may vary depending on the model, and the product specifications are subject to change without prior notice for reasons of performance enhancement.
Safety Instructions
Introduction
Setup
Adjusting Your Monitor
Troubleshooting
Specifications
Information

Contact SAMSUNG WORLD-WIDE

If you have any questions or comments relating to Samsung products, please contact the SAMSUNG customer care center.

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CANADA	1-800-SAMSUNG (7267864)	http://www.samsung.com/ca
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HONG KONG	2862 6001	http://www.samsung.com/hk
INDIA	3030 8282, 1800 1100 11	http://www.samsung.com/in
INDONESIA	0800-112-8888	http://www.samsung.com/id
JAPAN	0120-327-527	http://www.samsung.com/jp
MALAYSIA	1800-88-9999	http://www.samsung.com/my
PHILIPPINES	1800-10-SAMSUNG (7267864)	http://www.samsung.com/ph
SINGAPORE	1800-SAMSUNG (7267864)	http://www.samsung.com/sg
THAILAND	1800-29-3232, 02-689-3232	http://www.samsung.com/th
TAIWAN	0800-329-999	http://www.samsung.com/tw
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Terms

Dot Pitch
The image on a monitor is composed of red, green and blue dots. The closer the dots, the higher the resolution. The distance between two dots of the same color is called the 'Dot Pitch'. Unit: mm

Vertical Frequency
The screen must be redrawn several times per second in order to create and display an image for the user. The frequency of this repetition per second is called the Vertical Frequency or Refresh Rate. Unit: Hz

Example :If the same light repeats itself 60 times per second, this is regarded as 60 Hz.

Horizontal Frequency
The time to scan one line connecting the right edge to the left edge of the screen horizontally is called the Horizontal Cycle. The inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

Interlace and Non-Interlace Methods
Showing the horizontal lines of the screen from the top to the bottom sequentially is called the Non-Interlace method while showing odd lines and then even lines in turn is called the Interlace method. The Non-Interlace method is used for the majority of monitors to ensure a clear image. The Interlace method is the same as that used in TVs.

Plug & Play
This is a function that provides the best quality screen for the user by allowing the computer and the monitor to exchange information automatically. This monitor follows the international standard VESA DDC for the Plug & Play function.

Resolution
The number of horizontal and vertical dots used to compose the screen image is called the 'resolution'. This number shows the accuracy of the display. A high resolution is good for performing multiple tasks as more image information can be shown on the screen.

Example :If the resolution is 1600 x 1200 , this means the screen is composed of 1600 horizontal dots (horizontal resolution) and 1200 vertical lines (vertical resolution).

For Better Display

1. Adjust computer resolution and screen injection rate (refresh rate) oncomputer as described below to enjoy the best quality of picture. You can have an uneven quality of picture in the screen if the best quality of picture is not provided in TFT-LCD.
   - Resolution: 1600 x 1200
   - Vertical frequency (refresh rate): 60 Hz
2. TFT LCD panel manufactured by using advanced semiconductor technology with precision of 1ppm (one millionth) above is used for this product. But the pixels of RED, GREEN, BLUE and WHITE color seem to be bright sometimes or some of black pixels could be seen. This is not from bad quality and you can use it without uneasiness.
   - For example, the number of TFT LCD sub pixels that is contained in this product are 5,760,000.
3. When cleaning the monitor and the panel outside, please apply the recommended small amount of cleaner by using a soft cloth to polish. Do not force the LCD area but rub softly. If excessive force is applied, you may stain it.
4. If you are not satisfied with the picture quality, you can get better quality of picture by

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performing the "auto adjustment function" in display screen that is appeared as window termination button is pressed.
If there's still noise after the automatic adjustment, use the FINE/COARSE adjustment function.

5. If you view a fixed screen for an extended period of time, residual image or blurriness may appear.
   Change the mode to energy save or set a screensaver to move the picture when you need to be away from the monitor for an extended period of time.

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PRODUCT INFORMATION (Image Retention Free)

LCD Monitors and TVs may have an image retention when switching from one image to another especially after displaying a stationary image for a long time.
This guide is to demonstrate a correct usage of LCD products in order to protect them from Image retention.

- **Warranty**
  Warranty does not cover any damage caused by image retention.
  Burn-in is not covered by the warranty.

- **What is Image retention ?**
  During normal operation of a LCD panel, pixel image retention doesn't occur. However, if the same image is displayed for a long time, a slight difference in electric charge accumulates between the two electrodes which encase the liquid crystal. This may cause the liquid crystal to build up in a certain areas of the display. Thus, the previous image is retained when switching to a new video image. All display products, including LCD,are subject to image retention. This is not a product defect.

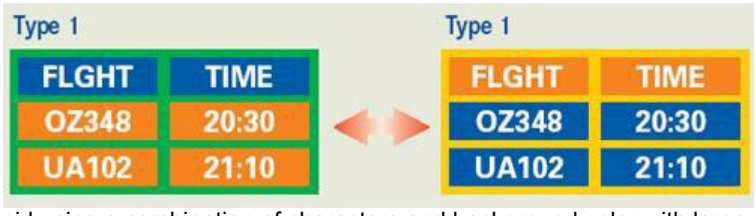
  Please follow the suggestions below to protect your LCD from image retention

- **Power Off, Screen Saver, or Power Save Mode**
  Ex)
  - Turn the power off when using a stationary pattern.
    - Turn the power off for 4 hours after 24 hours in use
    - Turn the power off for 2 hours after 12 hours in use
  - Use a Screen saver if possible
    - Screen saver in one color or a moving image is recommended.
  - Set the Monitor to power off with the PC Display Properties Power Scheme.

- **Suggestions for specific applications**
  Ex) Airports, Transit Stations, Stock Markets, Banks, and Controlling Systems
  We recommend that you follow set up of your display system program as below:

- **Display Information together with Logo or Moving image cycle.**
  Ex) Cycle : Display Information for 1 hour followed by a
  Display Logo or moving image for 1 minute.

- **Change the Color Information periodically (Use 2 different colors).**
  Ex) Rotate the Color Information with 2 colors every 30 minutes.



Avoid using a combination of characters and background color with large difference in luminance.
Avoid using Grey colors, which can cause Image retention easily.

- Avoid: Colors with big difference in luminance (Black & White, Grey)

Ex)

- Recommended settings: Bright colors with little difference in luminance

- Change the characters color and background color every 30 minutes

Ex)

- Every 30 minutes, change the characters with movement.

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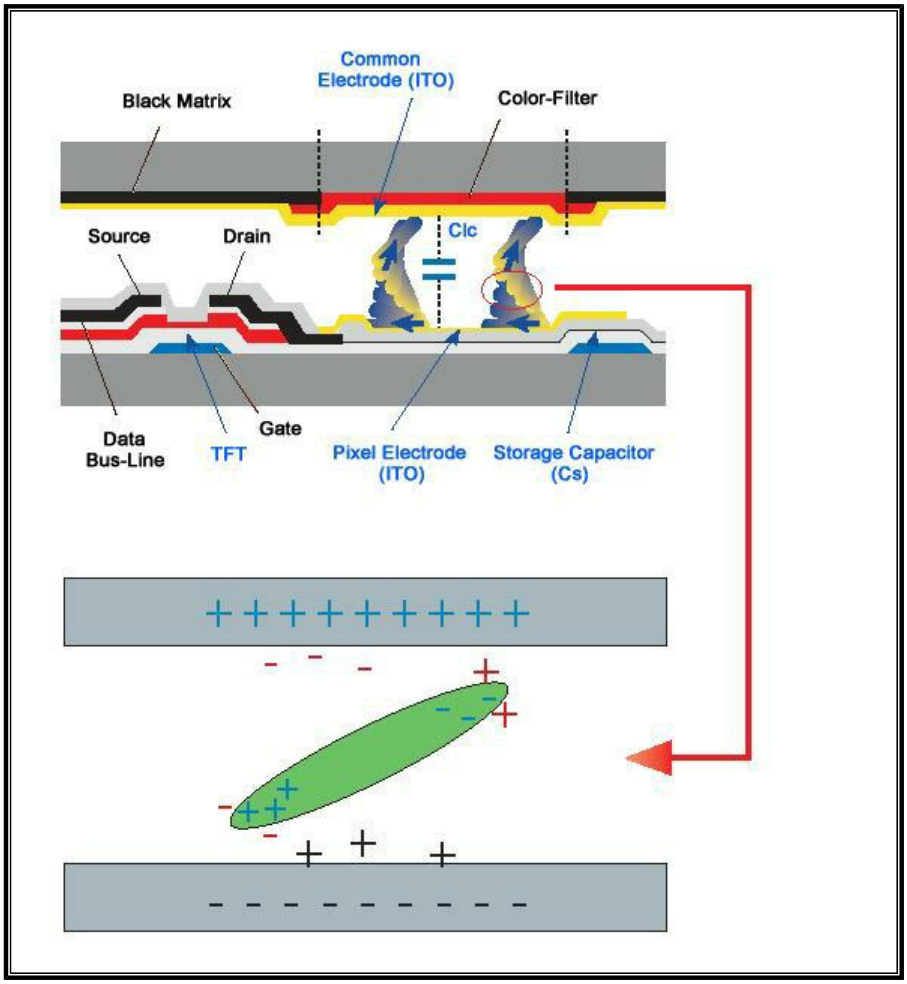
Ex)

- **The best way to protect your monitor from Image retention is to set your PC or System to operate a Screen Saver program when you are not using it.**

  Image retention may not occur when a LCD panel is operated under normal conditions.

  Normal conditions are defined as continuously changing video patterns. When the LCD panel is operated for a long time with a fixed pattern (-over 12 hours-), there may be slight difference in voltage between electrodes that work the liquid crystal (LC) in a pixel. The voltage difference between electrodes increases with time, forcing the liquid crystal to lean. When this occurs, the previous image may be seen when the pattern is changed.
  To prevent this, the accumulated voltage difference must be decreased.



- Our LCD Monitor satisfies ISO13406-2 Pixel fault Class II

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Correct Disposal of This Product
(Waste Electrical & Electronic Equipment) - Europe only

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

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